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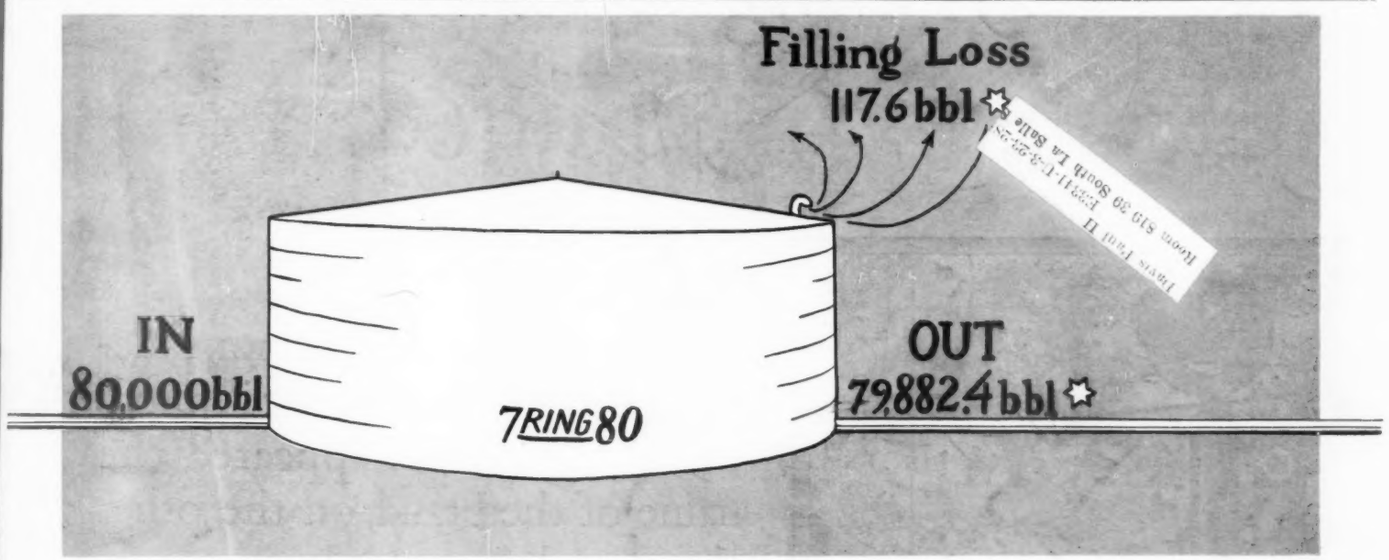
The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

Published Every Thursday TULSA, OKLAHOMA, FEBRUARY 24, 1927 $6.00 a Year



The proven saving in evaporation loss in filling and emptying such a tank will soon pay the cost of equipping it with a

The calculated evaporation loss in this example is based on test records of one large oil company in handling a blend of crude oil and natural gasoline. In pumping 320,000 barrels in tanks equipped with Wiggins Floating Roofs, only 4.6 barrels were lost by evaporation. The oil company's own experience showed that the same operation in gastight tanks would have meant a loss of 476.2 barrels, a net saving for the Wiggins Roof of 471.6 barrels or 1.47 barrels per thousand barrels pumped.

This saving, of course, varies greatly with the gravity of the oil handled but in general Wiggins Roofs pay for themselves in less than a year. Estimate your own losses on the above basis and then let us estimate the cost of stopping this gigantic leak. Address the nearest office.

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CHICAGO BRIDGE & IRON WORKS

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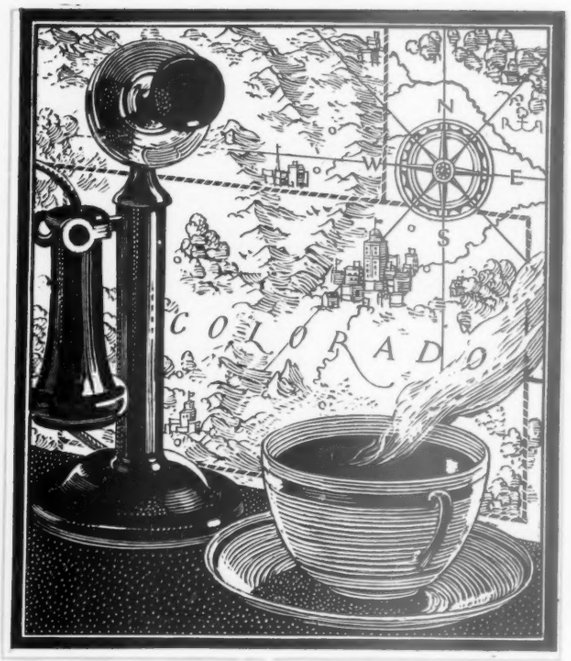
Advertisers' Index on Page 25 Table of Contents on Page 26

THE
JOHN CRERAR
LIBRARY

Coffee
by Long Distance

$10,963.20

worth



A COLORADO COFFEE COMPANY devised a new container for its product. On one side appeared the name of the brand, on the other the word "sugar," "corn-meal," "salt" or some other commodity for which the can could later be used. Here was an idea likely to appeal to housewives. What was needed was quick distribution. They got it—by Long Distance. Telephone calls to 19 dealers in 9 states got 18 orders for 27,128 pounds of coffee. Later, the 19th dealer bought as a result of the call.

WHENEVER ACTION is important, we suggest long distance calls. Compare the charges with what it would cost to send representatives in person. Compare the number and size of the orders and compare the time required.

Hundreds of businesses are now using the telephone over states and over trade territories as they formerly used it locally. There are no county or state lines to the telephone, in buying and selling goods; in making appointments; in closing transactions. In saving time and money. What concern would it pay to call now, in the next state or across the continent? The cost of a long distance call is usually less than you'd think. . . . . *Number, please?*

BELL LONG DISTANCE SERVICE

Feb

Th

Tips *is* profitable

MANY kinds of tips *are* profitable. But the kind of Tips we speak of *is* profitable. We mean Oxy-Acetylene Tips.

Tips is a magazine published for the past five years by Linde for welders, engineers and production men who have anything to do with welding.

It contains the news of the oxy-acetylene process—new developments, new methods, new applications. It discusses the common, everyday jobs that welders have to do.

Edited by a staff that is in touch with welding and cutting developments in every industry, it is an invaluable guide for those who use the oxy-acetylene process.

"Tips" is a dynamic part of Linde service and is sent free to Linde users.

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Unit of Union Carbide and Carbon Corporation
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30 East 42d Street, New York

37 PLANTS . . . . . 107 WAREHOUSES

LINDE OXYGEN

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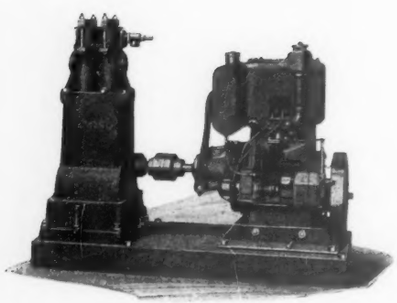
The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the postoffice at Tulsa, Okla., under the Act of March 3, 1879.

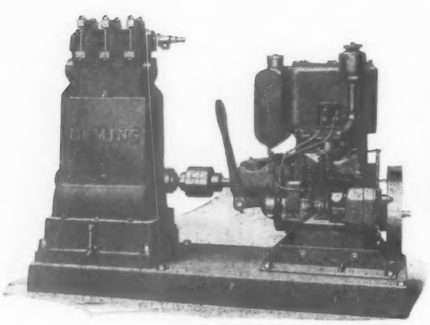
The handiest pump on the lease

DEMING

type 99



Type 992 Duplex



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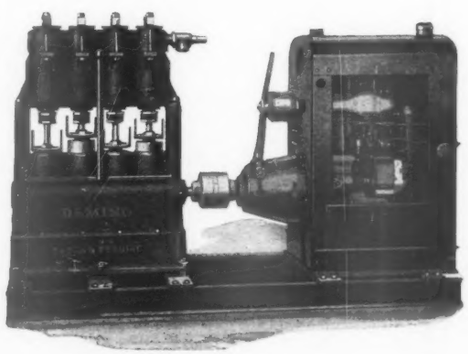

Type 994 Quadruplex

The Type "99" Deming . . . a self contained pumping unit . . . compact, powerful, light in weight . . . is a portable outfit that can be quickly set anywhere that emergency pumping is necessary.

Built in duplex, triplex and quadruplex types, direct connected to the powerful Novo Engine, this unit meets a need in the Oil Industry that has long existed.

It is an ideal equipment for fire protection . . . for picking up waste oil . . . for use on broken lines and a multitude of other uses on every lease.

Ask us for full particulars regarding Type "99" Deming Pumps.

Some "99" Features

- Fully enclosed.
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- Piston rods packed against suction only.
- Pumps oil or water without changes.
- Automatic relief valve takes care of overload.
- Furnished with portable truck if desired.
- Covered engine optional.

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Salem, Ohio

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Stuffing Cartridge Container with Eagle Lead Wool—as easily as you would handle ordinary rope

The Cartridge Container stuffed with Eagle Lead Wool, ready to be lowered at the end of tools to the battle ground of water

Write for this interesting booklet FREE

Plugging off bottom water

—the money saving method

THERE is no time for slow methods when bottom water comes into a well. But economy is a necessary consideration—and Eagle Lead Wool is economical for two reasons:

First, only as much lead wool as needed is shot to the battle ground of water. One cartridge or five—there is no waste.

Second, it shuts off water completely, immediately. Eagle Lead Wool is stuffed into a special cartridge container, developed by Eagle-Picher, and lowered into the well. Under pressure, the loose spongy wool is forced through the meshes of the container and becomes a plug of pure lead. No cracks or crevices are possible, no corrosion from alkaline water.

Eagle Lead Wool is as easy and quick to handle as ordinary rope. You can order it from your dealer, who stocks the Special Cartridge Container in all sizes. Or write direct to Eagle-Picher at Joplin. Free descriptive booklets will be sent on request.

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and Cartridge Containers

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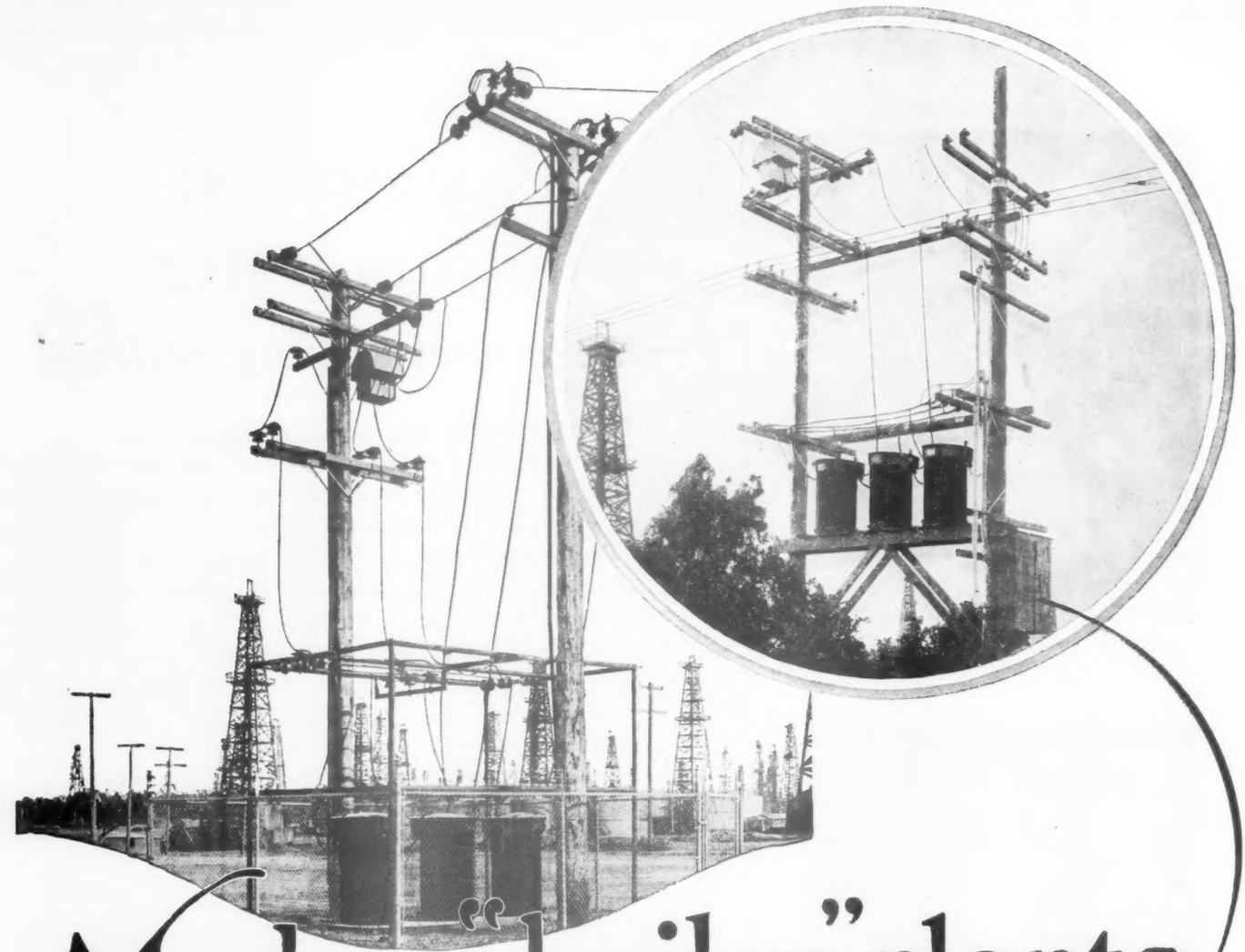

Modern "boiler" plants

Supplant your boilers with a small, compact bank of G-E Type H Transformers. All the delays of steam plant operation are eliminated, thus permitting more advantageous use of men—such as keeping the tool dresser on the derrick floor where he is most needed.

By electrifying your lease and using G-E Type H Transformers, you do away with all the disadvantages of isolated steam plants, gas pumps, gas regulators, and water cooling systems.

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"Type H—The Standard of Transformer Quality." Safety—durability—economy—are three of the outstanding features which have earned G-E Type H Transformers this title and which have placed millions of them in service.

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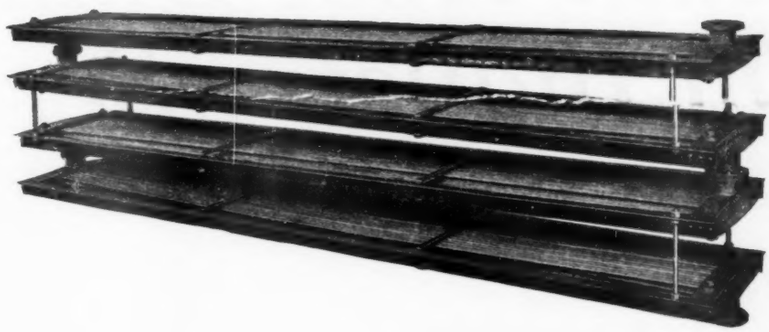
The G-R
(Patent)
Bentube Section



AN atmospheric cooler that automatically cracks off the scale formed on the outside of the tubes by the pronounced bowing of the tubes on change in temperature whenever steam or vapor is admitted to the section.

This scale-shedding action keeps the scale from building up to a thickness that will reduce the heat transfer rates below those for which the cooler is designed.

These sections are standard and interchangeable, provide for expansion, drainage and easy cleaning, are easily moved to new locations, and can be added to as desired for increase in capacity or greater cooling effect.

The many advantages of the G-R Bentube Section —its exclusive scale-shedding feature, interchangeability, long life, flexible capacity and high salvage value, make it well worth your further investigation.

Send for bulletin.

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A Steam Hose Built for Oil Industry Service!

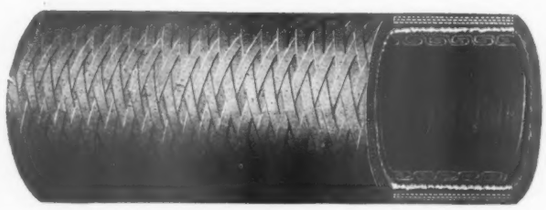
Probably no rubber product is called upon to withstand such constantly severe and abusive service as that met by steam hose in oil refinery and oil field use.

High pressures—high temperatures—rough handling—the deteriorating action of oil—your steam hose must stand up and deliver faithful service under the constant attack of these enemies.

"U.S." Perfected Steam Hose has been the standard of steam hose performance for many years. It is well-known throughout the oil industry for its long-lived, economical service.

Look at the husky oil-resisting inner tube and outer cover! Note the plies of stout frictioned duck—and the special braided jacket ply—insurance against oil rotting and hose unwrapping.

Specify "U.S." Perfected!



"U.S." Hi-Heat Steam Hose

Here is a specially developed steam hose, constructed to meet the exceptionally severe steam conditions in refineries where steam pressures run over 150 pounds. Minimum radiation of heat or condensation of steam is insured by using a metal tube which holds the heat, and by insulating the hose with a special asbestos and heat-resisting rubber compound. A woven mesh protective covering resists the most excessive abrasion.

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Austin will furnish steel and other essential materials for erection of field buildings by your own or local forces, buildings furnished from your designs or Austin's.

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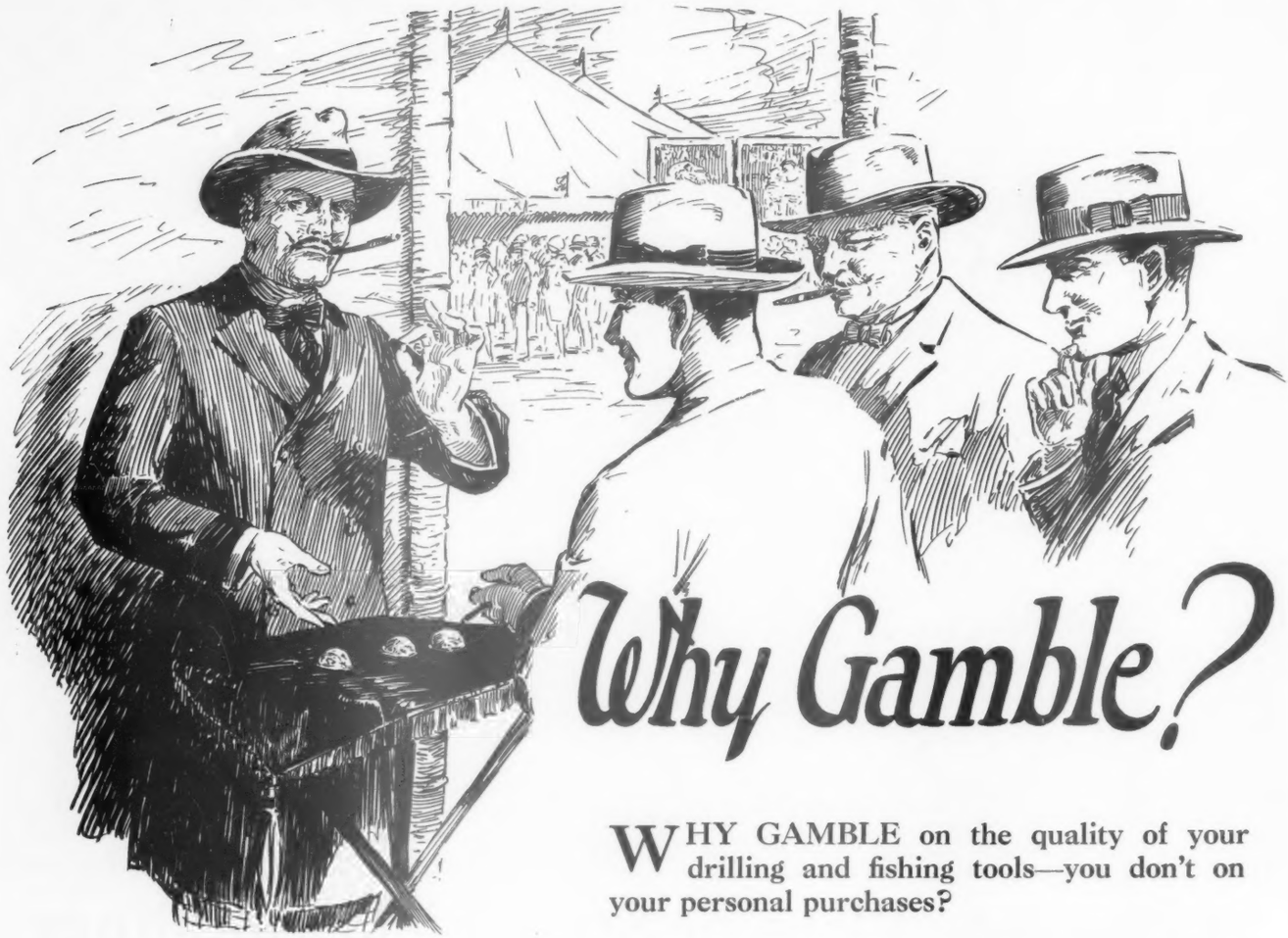


Why Gamble?

WHY GAMBLE on the quality of your drilling and fishing tools—you don't on your personal purchases?

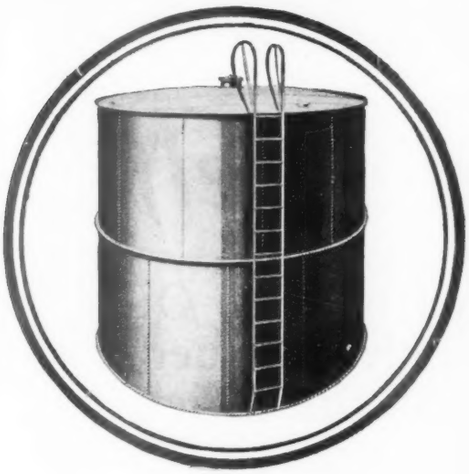
When you buy a watch, you do not inspect each wheel and cog. When you buy an automobile, you do not look at each bolt and bar. When you buy a suit, a shirt or a hat, you do not experiment.

In all these purchases you pick out a name or trade mark you can trust and buy on faith in that name.

SWAN Underreamers and our HYCHROME line—Hychrome Prosser Swivel Rope Sockets, Hychrome Boxes and Pins, Hychrome Drilling Bits, the bits with the guaranteed pins—are all Bridgeport products,

—and Bridgeport is a name in which oil men have placed their confidence and put their trust for over a decade.

THE BRIDGEPORT MACHINE COMPANY
WICHITA KANSAS



At ONE time in the Big Lake Field there were FIFTY-FOUR 1,000-barrel Butler Bolted Tanks in a row—nearly one-quarter of a mile long! Demand for such large service must be deserved.

Why

Butler Bolted Tanks

give good service

When Butler Bolted Tanks are made all holes are punched by mammoth machines. Accuracy of size and position of holes is, therefore, dependable.

When Butler Tanks reach the oil field this gang punching of holes permits speedy erection!

The larger steel sheets used by Butler reduce the *number* of sheets necessary for a tank which in turn reduces the *number* of seams. With fewer sheets to handle the erection gang can make better speed. Fewer seams mean fewer leaks.

Butler service is world-wide. Dependable dealers of years of experience put up Butler Tanks with speed and accuracy. Call on them or write us direct for complete information.

Any kind of welded tank made to your specifications.

These reliable dealers erect Butler Bolted Tanks and are ready to serve you speedily:

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Butler Products include: *Ready-Made* Steel Buildings, Cans, Funnels, Buckets, Measuring Pumps, Truck Tanks, Underground Tanks, Storage Tanks, Bolted Tanks, Etc.

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Foreign Dept.: Kansas City, Mo.

History Repeats Itself

Every annual number published by The Oil and Gas Journal is sold out as quickly as issued. The issue of February 10, containing the review for 1926 and the outlook for 1927, was completely exhausted the day after publication, although, as usual, every effort had been made to anticipate the demand.

Belated inquiries for copies had to be answered that there was not one to be had for love or money. Repeat orders from news stands throughout the country were, of course, impossible to fill.

So, while regretting that we cannot oblige those who would like to procure copies, we can only reiterate that the only sure way of getting these special numbers or indeed any issue of The Oil and Gas Journal is to place your order in advance by becoming a regular subscriber.

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The Timken demonstration of *POSITIVE ROLL ALIGNMENT* will point the way to new possibilities in machine design to any engineering department. A request brings a Timken Industrial Engineer.

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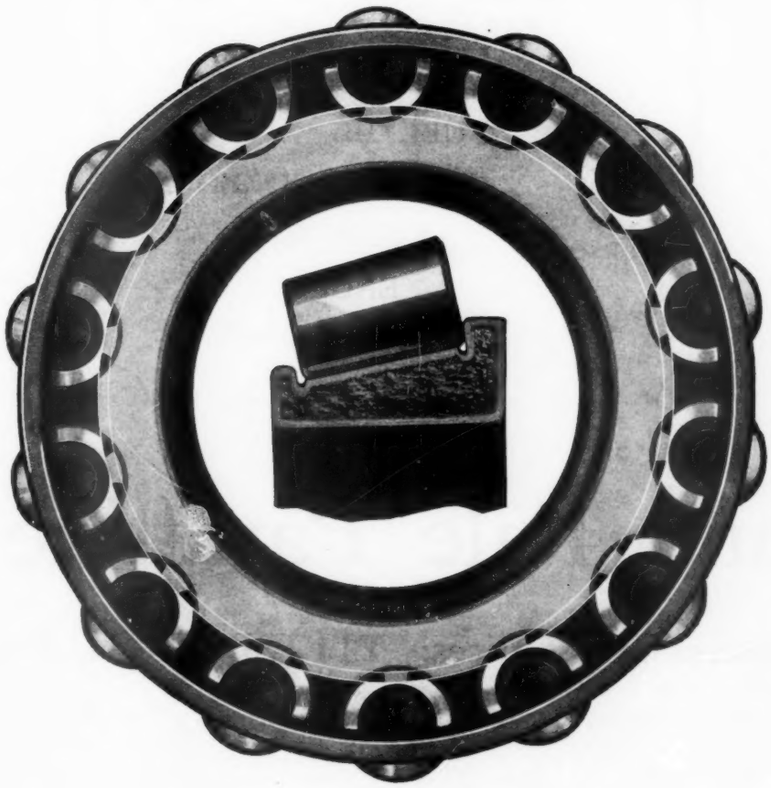
Technical information regarding bearing sizes and their mountings can be secured from the Timken Roller Bearing Service & Sales Company's Branches located in the following cities: Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, Newark, New York, Omaha, Philadelphia, Pittsburgh, Richmond, St. Louis, San Francisco, Seattle, Toronto, Winnipeg

TIMKEN *Tapered Roller* **BEARINGS**



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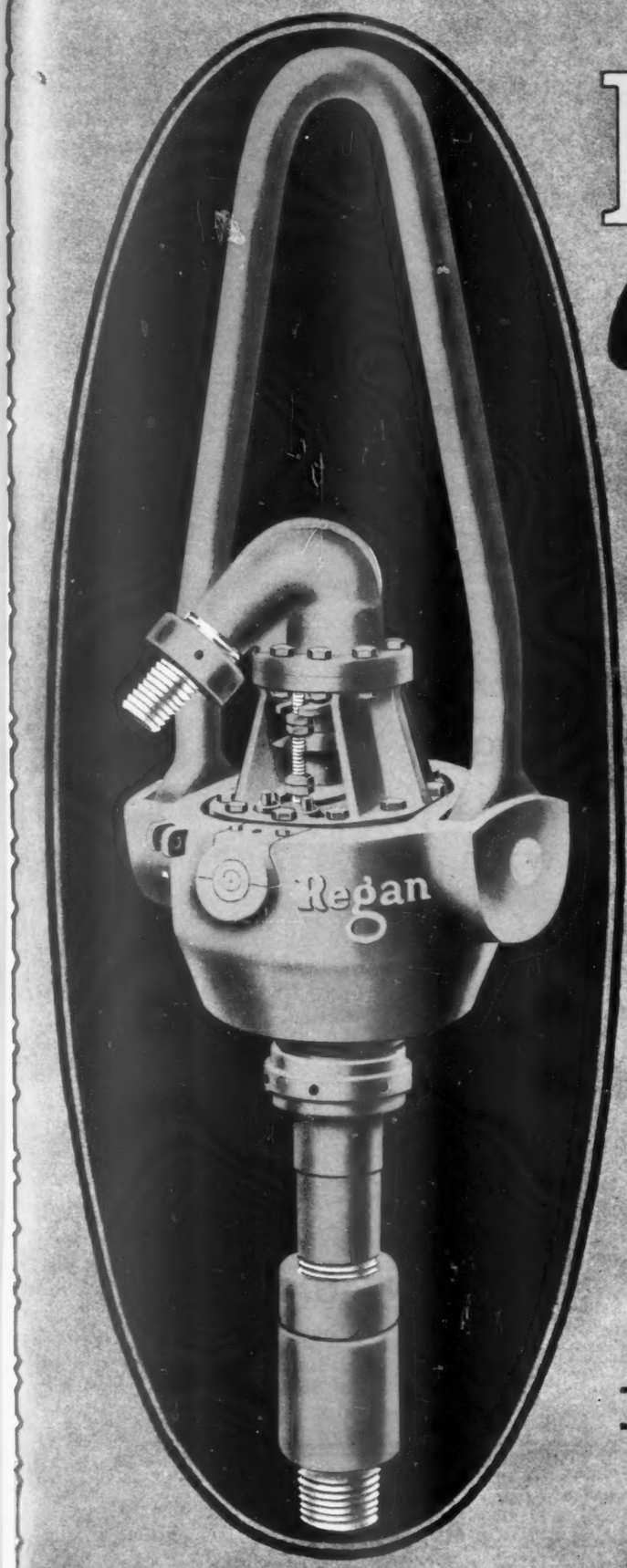

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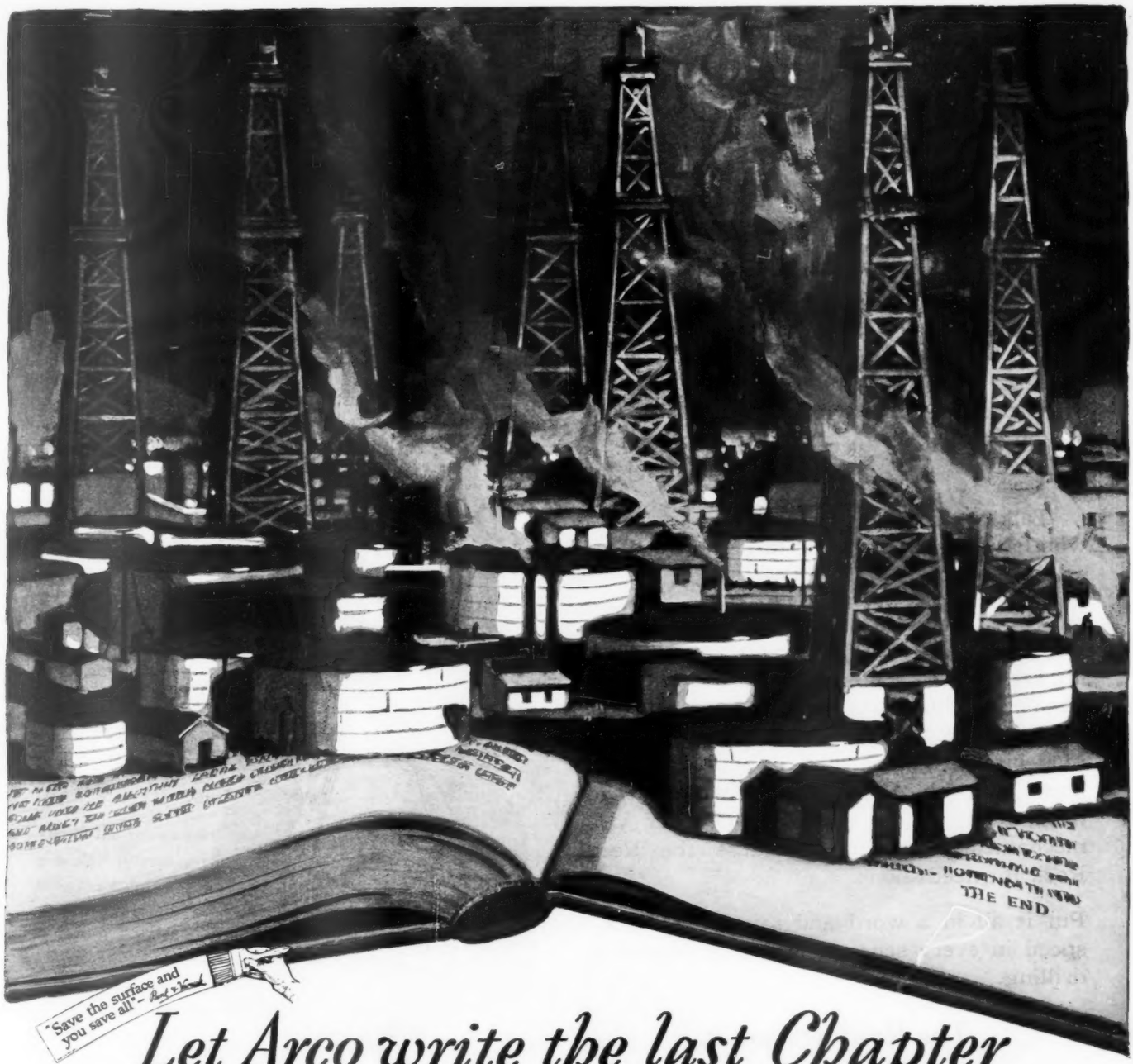

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to the old Story - Excess Depreciation

Turn the pages . . . study the maintenance costs on your books. As you do it, keep this in mind. Once they start . . . wind and weather, gases and fumes work overtime. They never stop, unless *you* stop them.

No matter how severe your conditions, Arco has perfected a formula and finishing method to meet them. Arco paints and protective products will defeat their ravages *permanently*. Our technical department will be glad to recommend a formula and finishing method for your pipe lines, tanks and other equipment.

Write us . . . tell us your problems. Our 46 years of protecting experience will be invaluable to you. *Take advantage of this service today.*

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ARCO

PAINTS VARNISHES ENAMELS LACQUERS

Cuts rock faster—
—that's it!

Getting the hole down is what counts. Until it is down, nobody can take a nickel's profit up out of it.

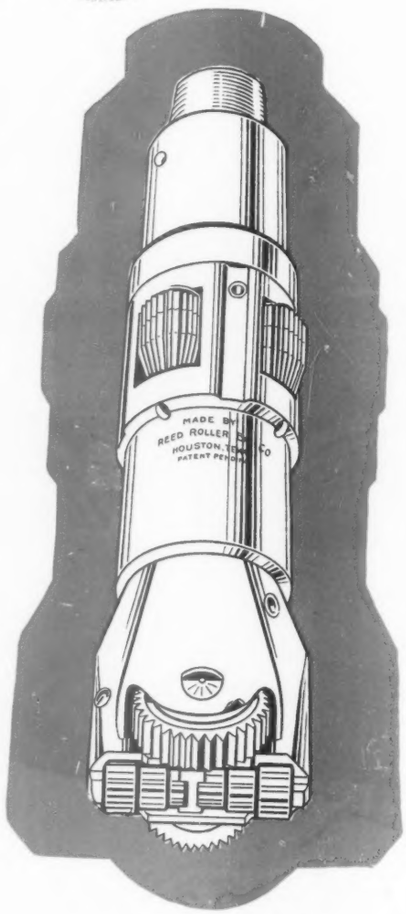
That is why you find a Reed Rock Bit on the derrick floor of any operation where they reckon on striking rock. When they do, they are ready with this fast rock-cutting tool.

Talk to the men who run one—the men who have costs to answer for. Talk to them on the job. They will tell you things.

They run the Reed on a tight line and get rid of a lot of wear-and-tear on rig and drilling crew too. When they have to handle it, it handles easily, without needing tinkering or fussing over. They change from fishtail to rock bit in jig-time, and back again— and know the hole gauge never changes when using a Reed. They haven't any bother with mechanical lubrication, because the Reed Rock Bit needs none.

Put it all in a word and say S-P-E-E-D—speed in every sense—speed that counts in drilling.

The Reed delivers it.



The REED Standard Model

Built for the heaviest kind of duty under the most trying conditions—and stands up on the job. Let us send you a pictorial description that tells a lot.

Reed **ROCK BIT**

IT SURE DOES MAKE A DIFFERENCE!

Reed Roller Bit Company

HOUSTON
LOS ANGELES

REID GAS 4 CYCLE ENGINES

FEATURES

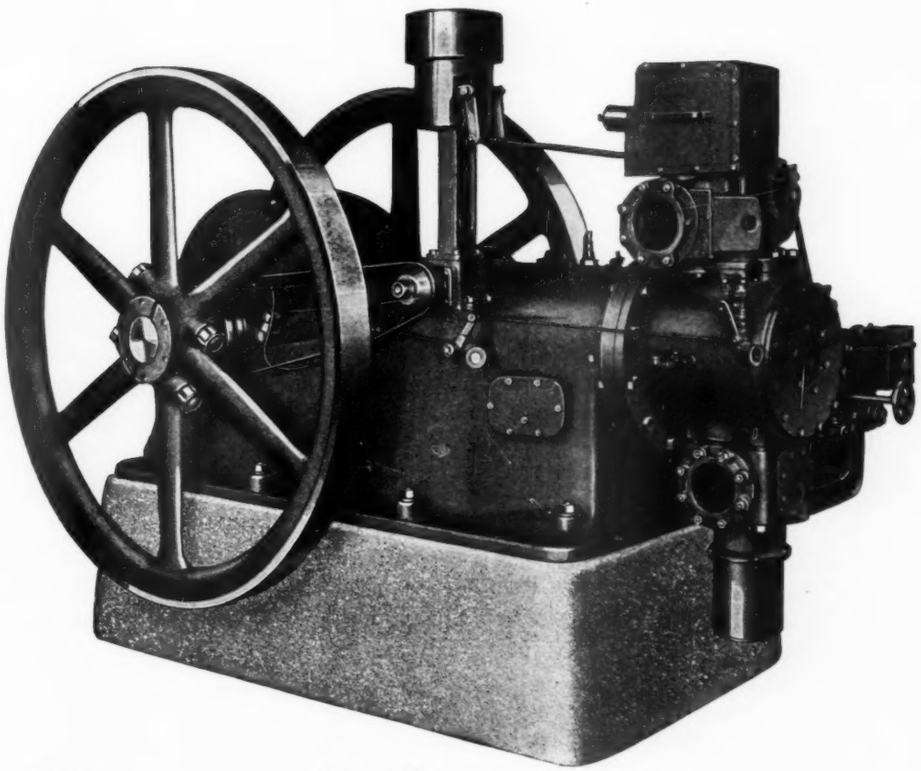
This engine is built in two sizes—45 HP and 65 HP.

It is a slow speed, heavy duty engine built for work which requires unfaltering power.

The construction of the bed and cylinder has the important advantage that no gaskets are required in the combustion chamber.

The valve mechanism provides correct proportional mixtures of gas and air throughout the entire load range—an important advantage contributing to the low fuel consumption characteristic of the engine.

Write for descriptive bulletin.



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Reliable
Dependable

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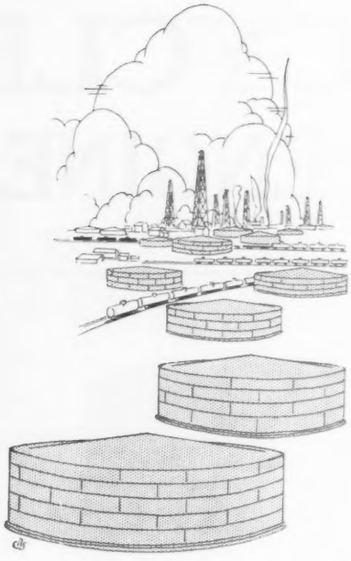
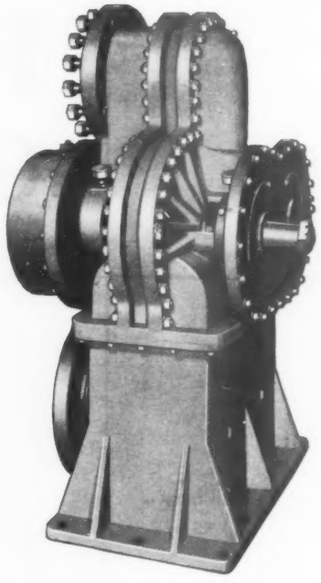


"Small Town" Pride makes a "Big Town" Pump



When things happen in a small town, everyone is interested. That's the everyday atmosphere of the Northern Pump organization. In spite of its growth, it has kept a spirit of personal pride in the pumps it sends into service. The shipping clerk is as enthusiastic as the "boss" over that big order for 10 "custom built" Northern Rotary Pumps for a large eastern Refinery—and over those two 1,000 GPM Northerns on the West Coast that have been going 22½ hours daily for three years straight without a falter—and again when news came that several Northerns down in Texas had broken all records for economical power consumption.

Northern Pumps have done their jobs so faithfully that they have gained an enviable national reputation.

In the oil game some of the largest companies are using Northerns, because they get behind a load and put it where it belongs in a hurry, and without pulsation. Lateral ports prevent power losses and reversal of flow. Rotors have automatic adjusting packing strips that feed out as they wear, always keeping a tight, even contact with the pump wall. Rotors are driven and timed by hardened steel pilot gears running in oil. Shafts turn in roller bearings locked on the shafts to prevent end play. And every part is plenty strong to stand up under the strenuous oil field service.

Northern Field Engineers have the same spirit of *personalized service* that goes into the manufacture of Northern Pumps. They will be glad to prove that the Northern's guarantee—"the customer must be absolutely satisfied"—means exactly what it says.

Write or wire your inquiries direct.

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NORTHERN FIRE APPARATUS CO.
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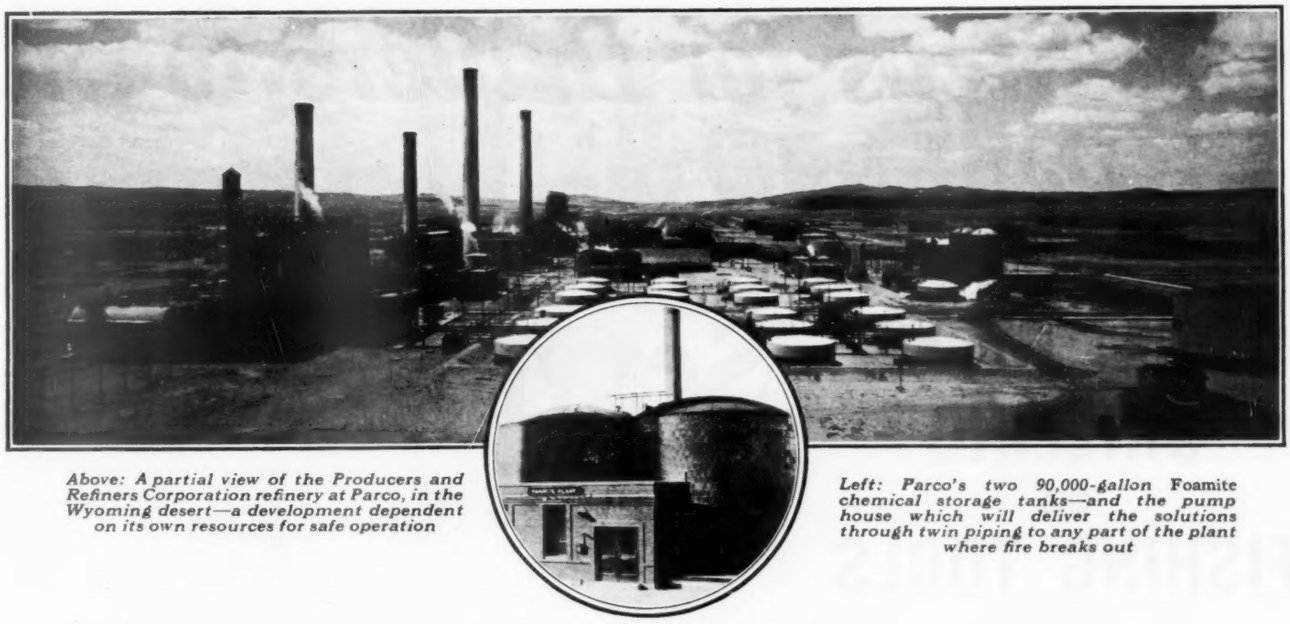

Above: A partial view of the Producers and Refiners Corporation refinery at Parco, in the Wyoming desert—a development dependent on its own resources for safe operation

Left: Parco's two 90,000-gallon Foamite *chemical storage tanks—and the pump house which will deliver the solutions through twin piping to any part of the plant where fire breaks out*

A new city on the oil map

with a fire-fighting system that assures maximum safety for life, property, and business operation

A REMARKABLE tribute to modern industrial and civic foresight is the fast-growing town of Parco, rising from the midst of Wyoming's barren desert.

Site of a great new plant operated by the Producers and Refiners Corporation, Parco is being developed on a plan that includes every detail of sound progress.

One most important feature is the complete scientific protection of life and property against fire. And the heart of this protection at Parco is a standard *Foamite* System, safeguarding the entire refinery and tank farm.

Here as throughout the oil industry it is recognized that the *Foamite* method, operating with genuine Firefoam Liquid through *Foamite* equipment, is the highest development of the foam fire-fighting principle.

* * *

At points convenient to all the important oil producing, refining and distributing centers, Foamite-Childs fire protection engineers are always at your service. Call on them for preliminary surveys and recommendations—gratis.

FOAMITE-CHILDS CORPORATION
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162 Turner Street, Utica, N. Y.
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Safe Steps for Drillers to the Peak of Quality Service and Value

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Write for Our Complete Catalogue

ACME Drilling Jar

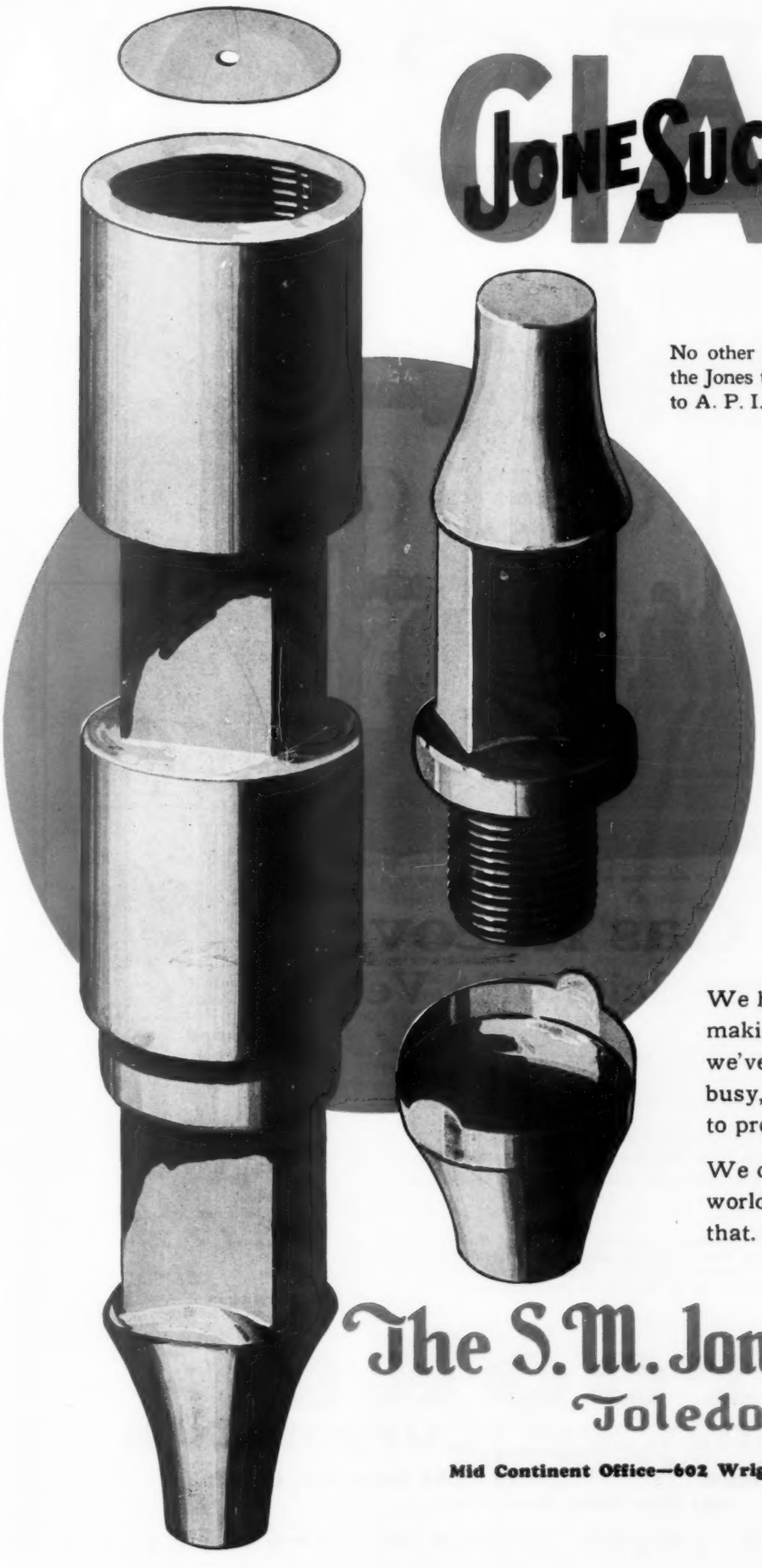
ACME Rasped Mandrel Bit (Patented)

ACME Improved Cracker Rope Knife (Patented)

ACME Center Spear

When you're making hole with an Acme Tool you're making money because you save time by playing safe. If you haven't played safe and you're losing time as the result, use an Acme Fishing Tool to get out of trouble and then use Acme Drilling Tools to stay that way.

GIANT JONE SUCKER RODS



No other Rod has the milk bottle cap or the Jones thread protector. Threads made to A. P. I. Standards if desired.

No matter what thread is used it is only as good as the machine work.

We have to be extremely careful in making these Giant Rods, because we've got a mighty big plant to keep busy, and a mighty good reputation to protect—

We claim these Giant Rods are the world's finest—and we mean just that.

The S. M. Jones Company
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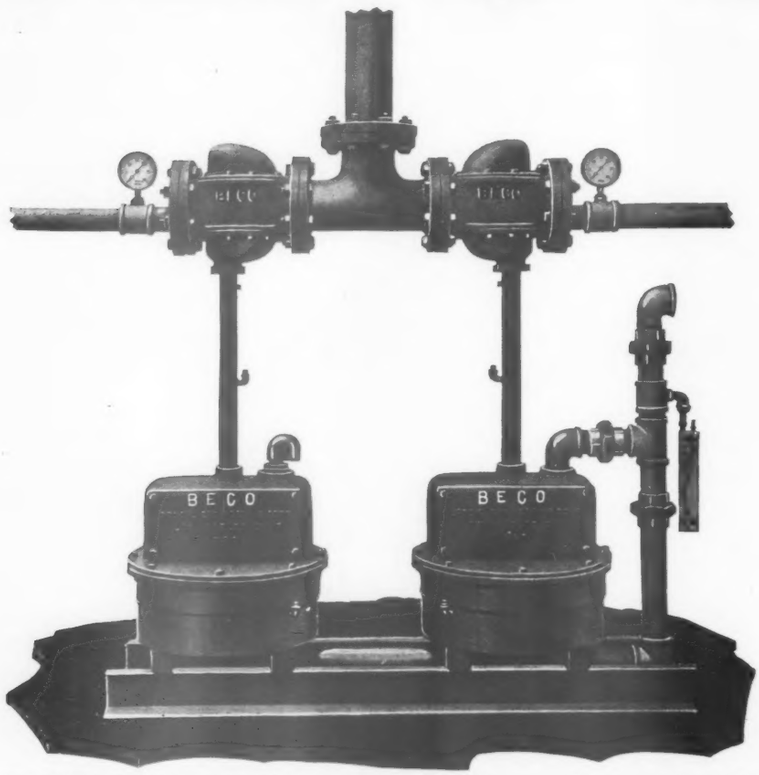
BECO



Two BECO Regulator Valves for maintaining proper pressure and vacuum control of vapors from tanks.

Full Gas Recovery
Requires Scientific Venting

The subject of gas recovery is rapidly increasing in importance as the Petroleum Industry is becoming more convinced of the necessity of properly conserving vapors from oil and gasoline storage.

As the outgrowth of 12 years of specialization in Tank Venting, Beco Engineers are in a position to offer the most practical recommendations. The Beco method of Gas Recovery and Vent Control assures 100% recovery plus 100% fire protection.

A copy of the interesting Booklet recently published by Stephen H. Brooks, entitled "The Science of Modern Tank Venting," may be had upon request. Executives and Engineers in the Petroleum Industry declare it to be the most complete and authoritative discussion of Tank Venting ever published.

Beco Equipment Includes:

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Gauge and Thief Hole Covers
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BECO EQUIPMENT LEADS WHILE OTHERS FOLLOW

A Faithful Watchdog on GUARD *against* CORROSION

Oil well metal equipment can be kept in good condition indefinitely by the adequate use of pure red-lead.

Pipe lines whether buried or above ground need the standard three-coat red-lead protection.

Tank cars are subject to every possible weather condition. Red-lead protection is a necessity.

The ideal painting combination for oil storage and run-down tanks is an undercoating of red-lead and finishing coats of white-lead.

In every division of the oil industry red-lead is protecting metal equipment from corrosion

CORROSION—enemy of iron and steel—is constantly attacking metal equipment thruout the oil industry. Oil men are alive to this fact. Sound business management demands that corrosion loss be reduced to a minimum. Oil companies want the surest, most economical protection for their metal equipment. That is why pure red-lead is the accepted protective paint for metal in the oil industry.

3 out of 5 use pure red-lead

The following investigation is convincing: A representative group of oil men were asked what paint they use for metal protection. Of the 53 who replied, 32 (or 3 out of every 5) said "pure red-lead." These oil men represent every oil field in the United States.

Dutch Boy red-lead is highly oxidized, finely ground, uniform. It provides the surest protection you can give your metal equipment. Use three coats. Pay especial attention to bolt heads, edges, and out-of-the-way corners. You will find your steel replacement costs materially reduced.

Dutch Boy red-lead is sold in both paste and liquid form. The liquid comes in the natural orange-red for next-to-metal coats, and also in greens, browns, and black for finishing coats. The paste is obtainable in orange-red, and can be shaded to dark colors.

To reduce evaporation loss

Tanks and tank cars painted in light colors guarantee a large yearly saving in oil. Dutch Boy white-lead is ideal for reducing evaporation losses in this manner. And used over an undercoating of Dutch Boy red-lead it not only cuts your evaporation losses to a minimum, but gives the same weather-protection.

We shall be pleased to help you solve any question of metal protection. Specialists in our Department of Technical Service have made a study of paint for the oil industry. Their knowledge is thoro. Their assistance is free of charge. Address our nearest branch.

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Pittsburgh, National Lead & Oil Co. of Pa., 316 Fourth Ave.
Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut St.

Refinery metal equipment should be inspected frequently. Gases and rust-forming elements work together to produce corrosion.

Oil company industrial plants find repair bills are reduced when red-lead is used on all metal equipment.

Tankers are constantly menaced by the rust-forming elements. Care should be taken to keep the red-lead shield intact.

Tank trucks should be inspected frequently for repainting. Bumps and scraping remove the toughest paint.

Filling station metal equipment should be painted for two reasons—looks and protection. Lead paint is ideal for both.

DUTCH BOY RED-LEAD

"TAKING chances" is an unavoidable part of every operator's business. "Tempting nature" with wooden derricks which may or may not lie in the path of this year's storms is playing sooner or later into the hands of "sure loss". Every spring the elements take their toll. Your turn may be next—this year.

Protect your oil and equipment with the derrick that for years has demonstrated its ability to successfully defy high winds, destructive lightning, small fires and years of wet weather. International "IDECO" Derricks are the ones you see over the hole and working when their wooden and less scientifically constructed metal neighbors are blown flat.

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PRODUCING REFINING MARKETING

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Production Up to 2,457,042 Barrels

Highest daily average estimated production in 1926, week ended Dec. 25, 2,385,139 bbls. Lowest in 1926, January 30, 1,915,960 bbls.

Seminole and West Texas Responsible for General Increase. Crude Price Cuts Started Tuesday

By James McIntyre

Highest daily average estimated light oil production in 1926, week ended Dec. 25, 1,797,349 bbls. Lowest in 1926, Jan. 30, 1,371,600 bbls.

With the Seminole Field in Seminole County, Oklahoma, showing an increase of 16,340 barrels per day and the north central and west Texas area increasing 19,200 barrels per day over the average for the previous week, production of crude oil in the United States reached a new peak, 2,457,042 barrels a day, as an average for the week ending February 19. In the same week one year ago the average production was 1,924,580 barrels, showing an increase of 532,462 barrels per day in the course of the year. The increase in light oil production in the same period was 536,642 barrels per day while heavy oil production fell 4,180 barrels per day.

A number of new wells in Seminole and several big new producers in western Texas fields were mainly responsible for the new production peak. Seminole started this week with a production of 305,000 barrels, while the production Feburary 21, was reported at 320,640 barrels. Tuesday morning dawned with an accompaniment of new big wells completed by the Prairie Oil & Gas Company starting at 125 barrels an hour and 140 barrels an hour respectively, and the production mounted to 326,945 bbls.

Gulf Coast production and that of California and the Texas Panhandle showed an appreciable drop and North Louisiana and Arkansas fell off somewhat, but the declines which may be registered this week will not be sufficient to overcome the increase in Seminole if operators there continue to produce their wells to the limit.

The reduction of the crude price paid by the Carter Oil Company in Oklahoma and Kansas, posted Tuesday of this week amounted to 25 cents per barrel on the average grade of crude produced in the two states. The reduction was met by other companies and extended to North Central and West Texas and North Louisiana.

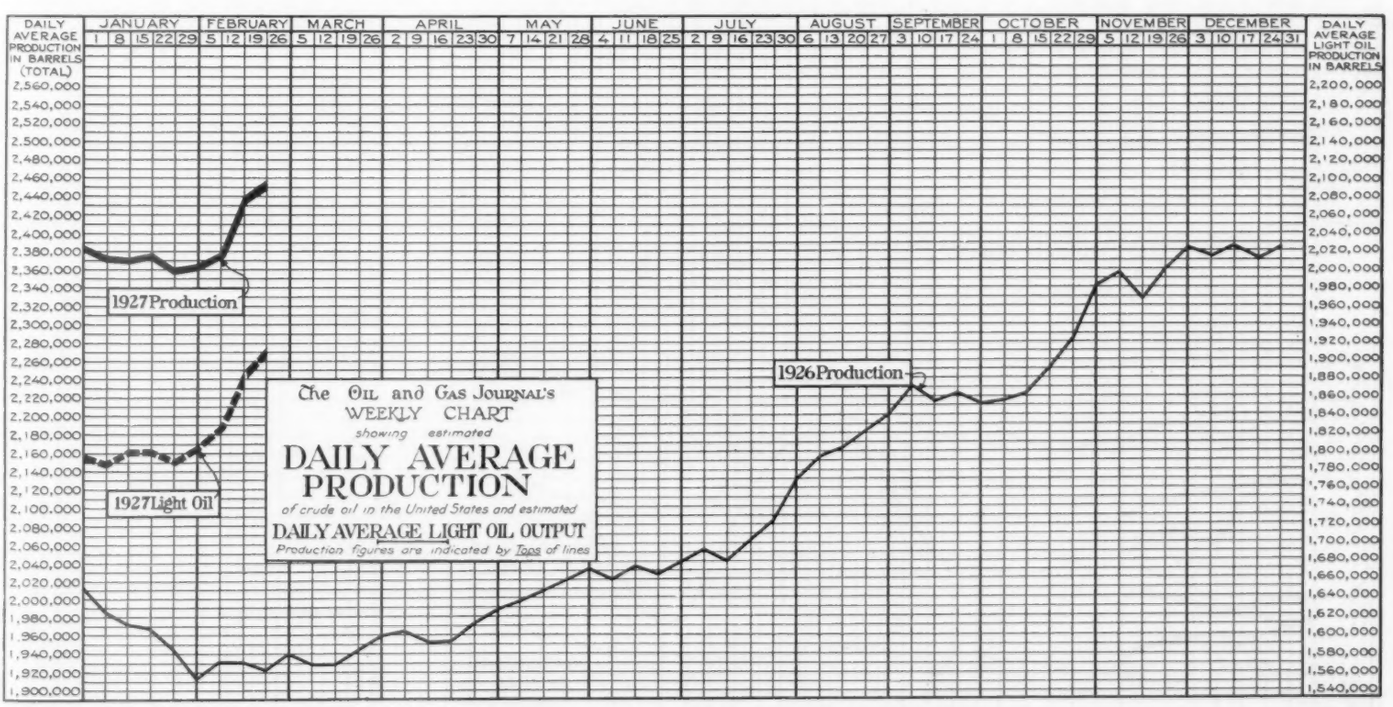
The Seal Beach Field in California was extended 1 mile this week with the completion of a 2,000-barrel well. It was the most important new development recorded in the course of the week. Seal Beach is the most important of California's new developments and should have a considerable influence on the general situation later in the year.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended February 19, and a comparison with the previous week follows:

	Feb. 19		Feb. 12	
Oklahoma—	Light	Heavy	Light	Heavy
Tonkawa	26,675	.....	26,015	.....
Burbank	49,720	.....	49,140	.....
Other Osage Fields	35,060	.....	35,085	.....
Cushing and Shamrock	21,170	.....	21,175	.....
Bristow and Eastern Bristow	27,235	.....	27,245	.....
Cromwell	13,710	.....	13,650	.....
Garber	18,820	.....	18,660	.....
Blackwell-Braman	17,400	.....	17,420	.....
Seminole	301,680	.....	285,340	.....
Wewoka	18,360	.....	20,110	.....
Northern Miscellaneous	110,400	.....	110,510	.....
Southern Fields	67,250	.....	67,400	.....
Total Oklahoma	707,480	.....	691,780	.....
North Louisiana	38,760	12,240	39,885	12,730
Arkansas	26,850	102,115	27,090	102,530
North Central and West Texas	256,440	.....	237,240	.....
Texas Panhandle	130,707	.....	132,085	.....
East Central Texas	43,405	.....	42,402	.....
Kansas	116,870	.....	116,500	.....
Total Mid-Continent Area	1,320,512	114,355	1,286,982	115,260
Gulf Coast	.....	153,605	.....	163,770
Southwest Texas	.....	38,470	.....	38,960
Eastern	107,200	.....	108,000	.....
Rocky Mountain Area	83,900	.....	84,170	.....
California—				
Santa Fe Springs	45,000	.....	45,000	.....
Long Beach	91,000	.....	92,000	.....
Torrance	6,100	19,400	6,000	19,500
Huntington Beach	82,000	.....	86,000	.....
Dominguez	18,500	.....	18,500	.....
Rosecrans	12,000	.....	12,000	.....
Inglewood	24,500	14,000	24,000	14,000
Ventura Avenue	51,000	.....	52,000	.....
Seal Beach	15,500	.....	13,500	.....
Remainder of State	58,000	202,000	58,000	203,000
Total California	403,600	235,400	407,000	236,500
Total United States	1,915,212	541,830	1,886,152	554,490
Grand Total	2,457,042		2,440,642	

→ **Total Increase, 16,400 Bbls.; Light Oil Increase, 29,060 Bbls.** ←



WHAT AND WHERE TO BUY—PAGES 165-166-167

Lower Crude Prices Upset Market

Mid-Continent Reductions Disturb Refinery Market in Oklahoma. Gasolines Experience Greatest Decline During Week With Little Demand

By Neil Williams

Following a reduction in Oklahoma and Kansas crude prices by all the major buyers, the Oklahoma (Group 3) refined market was unsettled Tuesday. Although in marketing circles the reduction is believed to have been discounted to a large extent, yet in all probability it will be several days before this will be known and the reaction determined.

The crude cut climaxed a week in which gasoline and distillate prices experienced a decided slump with gas oils, kerosenes and fuel oils only holding their own.

Both refinery and natural gasoline prices dropped generally three-eighths to one-half cent during the week, and Tuesday were at the lowest figure since the latter part of 1924. This, with the extremely sluggish movement of products and the last-minute development of a crude reduction gives an unfavorable aspect to the market.

The week also was unfavorable for kerosenes and distillates, the latter products especially being weak. Kerosene prices dropped only fractionally, but the slower movement resulted in a softer tone. Gas oils and fuel oils continued steady in price, but gas oils were noticeably easier.

The break in gasoline prices came despite efforts of some sellers to hold the market and who, even Tuesday, were quoting from one-half cent to a full cent above prices at which products have been moving the past week. There has been a gradual decline in gasoline markets since early in January, but the continued inactivity of trading forced some sellers the past week to make drastic reductions in their quotations with a view to stimulating movement of their accumulated stocks.

What is in store for the Oklahoma gasoline situation is a serious question confronting both buyers and sellers, especially with a crude reduction coming at this time of year. The early part of previous years usually has been marked by crude advances and with the exact opposite situation now existing developments in refinery markets next spring and summer will bear watching more than ever before.

From a domestic marketing standpoint, the Oklahoma refinery gasoline situation is uncertain. Competition of other refinery centers dumping material in certain strategic portions of the Mid-Continent's marketing territory at prices a quarter cent or more below the prevailing Group 3 quoted market is a bearish factor from which little immediate relief is seen, except possibly an unexpected increase in consumption or a radical decrease in production.

For several weeks eastern refinery markets have been strengthening and tankwagon prices have been advanced with indications that that source of Group 3 refiners' competition would be eliminated to some extent in certain districts. But, latest reports from the Atlantic Seaboard are to the effect that the gasoline situation there again is uncertain, due to the quantities of Mid-Continent and California material offered.

Reports that contracts are being sought in parts of the Standard Oil Co. of Indiana territory by certain southern Louisiana sellers also is causing misgivings among some market students, as this might be a sign of overabundance of gasoline for the southern part of the country and a forced new source of competition for the Mid-Continent in the northern and middle western states.

Oklahoma refiners having contracts

(Continued on Page 141)

REFINED MARKET BAROMETER

Refined markets of the country were generally unsettled the past week; and with reductions in Mid-Continent crude Tuesday, the outlook now is uncertain. **Atlantic Seaboard** gasoline continued firm, but the weakness in other sections of the country caused some uneasiness lest too much material might be dumped on the east coast. Unfavorable weather on both the east and west coasts slowed up consumption materially. Kerosenes found little demand in any area, and markets generally had a weak undertone. Distillates and other products used as burner oils also were slower, but gas oil prices were able to hold their own, as there still is not a great excess of material. Fuel oils were unchanged. The situation in eastern markets continued firm, and some improvement was shown in demand on the Pacific Coast. Mid-Continent fuel oil markets were steady. Lubricating oils were in better demand, except on the Gulf Coast, where the seasonal decline in zero test product requirements resulted in a slightly weaker undertone.

Mid-Continent—Refined markets unsettled, due to crude reductions. Refinery and natural gasolines declined sharply in price to lowest level since 1924. Distillates also weaker, and kerosene more free at fractionally lower quotations. Gas oil slower, and fuel oil spotted, but markets continue steady. Lubricants in better demand.

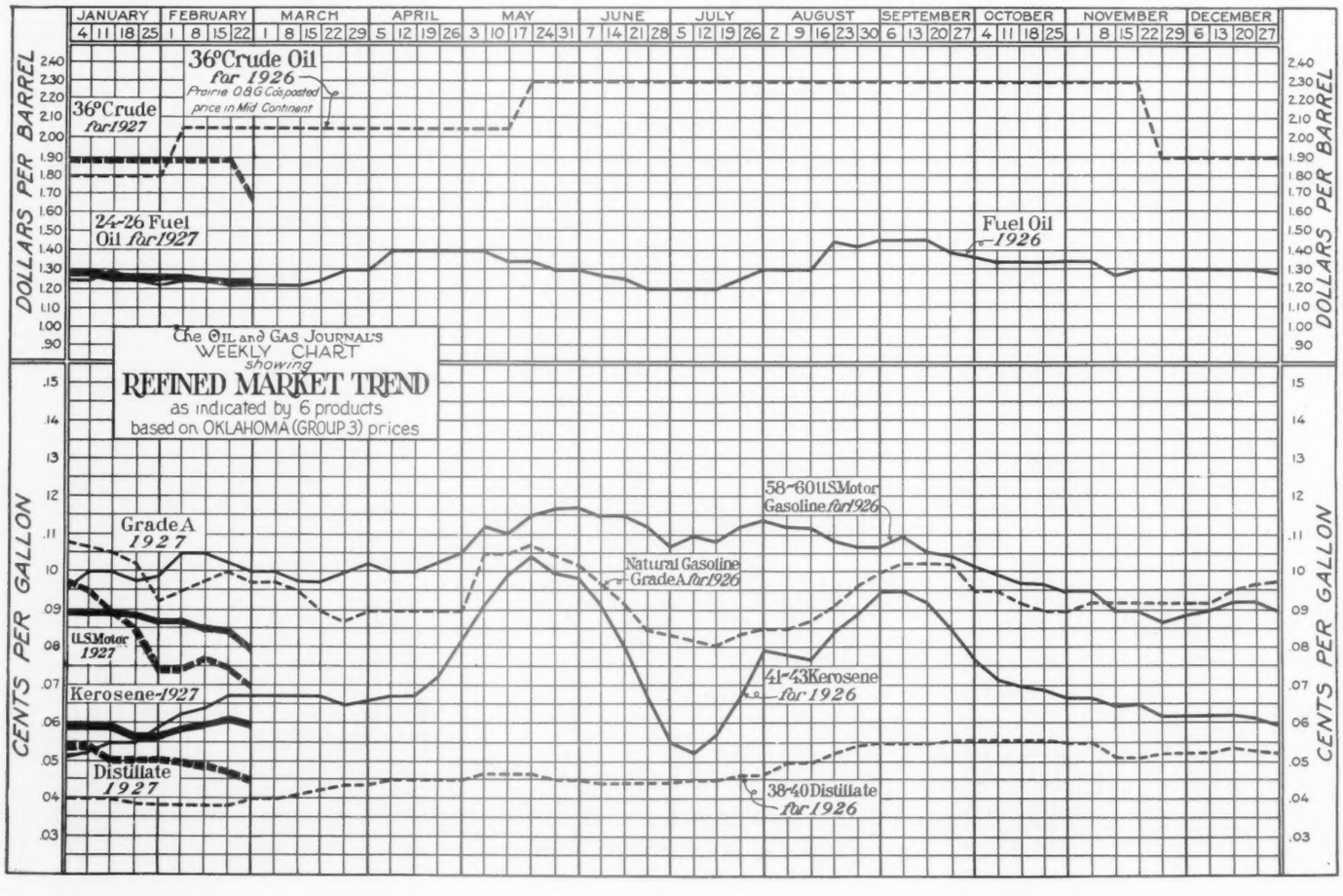
Atlantic Seaboard—Generally firm gasoline market prevails, but abundance of Mid-Continent material causes some uneasiness. Kerosene dull and gas oil barely holding its own. Fuel oil firm, and movement of lubricating oils improved.

Pennsylvania—Gasolines and naphthas weak, but consumption slightly better. Kerosene demand slower. Neutrals scarce, and bright stocks improved. Cylinder stocks unchanged.

Chicago—Better weather fails to increase refinery gasoline demand before crude cut; and with oil price down, outlook more unsettled. Distillates dull, and gas oil easier, but fuel oils generally unchanged.

California—Storms on Pacific Coast caused slump in gasoline consumption, and market uncertain. Fuel oil demand stronger. Prices generally unchanged.

Gulf Coast—Demand for Gulf Coast lubricants noticeably easier, and market has soft undertone. Refiners reducing runs as stocks of all products begin to accumulate.



Mid-Continent Crude Prices Cut

Carter Leads and Other Companies Quicky Follow. Average Reduction About 25 Cents Per Barrel

By James McIntyre

The Carter Oil Co., crude oil purchaser in Oklahoma and Kansas for the Standard Oil Co. of New Jersey, posted a general reduction in its crude price schedule on Tuesday, February 22.

Effective at 7 a. m. on that date, the Carter made its market price for Oklahoma and Kansas crude $1.35 for 28 gravity, with a differential of 4 cents per barrel for each degree of gravity, respectively, above or below 28 degrees.

The Prairie, Sinclair, Gypsy and Texas companies all met the Carter's price, and the Magnolia met the schedule on oil from 28 degrees upward, but made a flat price of $1.30 on oil below 28 gravity.

The new scale of prices, together with the old scale and the reductions consequent upon the new price schedule are as follows:

Gravity—	New Prices	Old Prices	Price Reduction
28° to 28.9°	$1.35	$1.50	$0.15
29° to 29.9°	1.39	1.55	.16
30° to 30.9°	1.43	1.60	.17
31° to 31.9°	1.47	1.65	.18
32° to 32.9°	1.51	1.70	.19
33° to 33.9°	1.55	1.75	.20
34° to 34.9°	1.59	1.80	.21
35° to 35.9°	1.63	1.85	.22
36° to 36.9°	1.67	1.90	.23
37° to 37.9°	1.71	1.95	.24
38° to 38.9°	1.75	2.00	.25
39° to 39.9°	1.79	2.05	.26
40° to 40.9°	1.83	2.10	.27
41° to 41.9°	1.87	2.15	.28
42° to 42.9°	1.91	2.20	.29
43° to 43.9°	1.95	2.25	.30
44° to 44.8°	1.99	2.30	.31
45° to 45.9°	2.03	2.35	.32
46° to 46.9°	2.07	2.40	.33
47° to 47.9°	2.11	2.45	.34
48° to 48.9°	2.15	2.50	.35
49° to 49.8°	2.19	2.55	.36
50° to 50.9°	2.23	2.60	.37
51° to 51.9°	2.27	2.65	.38
52° and above	2.31	2.70	.39

The new schedule means a reduction of from 29 to 34 cents per barrel in the Garber Field; 29 cents in Billings, North Braman, Thomas, Tonkawa shallow, Watchorn, Ingalls and a part of the Seminole production; a 30-cent reduction in South Braman, Otstot and Tonkawa deep sand. Bristow is given cuts ranging from 17 to 26 cents. The bulk of the production in the Seminole Field suffers a 28-cent drop in value per barrel. Likewise Davenport and Stroud. Osage production, outside of Burbank, is cut from 20 to 26 cents. Knox, Masham, Deep Rock, Papoose, East Shamrock, Knox and Cromwell get a 27-cent cut. Healdton, with its crudes varying from 28 to 33 degrees, is affected by reductions of 15 to 20 cents. A little very high grade oil above 50 degrees scattered here and there is cut 37 to 39 cents. Duncan, where the crude runs from 29 to 39 degrees, is cut 16 to 26 cents; Burbank Field, 23 to 25 cents; Cushing-Shamrock, 24 to 27 cents.

In the Kansas fields, the effect is as follows: Marion County, 16 to 21 cents; Butler County, 17 to 30 cents; Greenwood County, 18 to 28 cents; Cowley County, 21 to 25 cents; Sumner County, 28 cents; Rice County, 20 cents; Russell County, 27 cents; the old Kansas fields, 15 to 20 cents.

The Seminole Field produced 320,640 bbls. on Monday. The oil is 41 and 42 gravity, and the decline in value in that much production is about $90,000. Making 38 degrees the average gravity of Oklahoma-Kansas crude, and the current production of the two states 843,000 bbls., the 25-cent cut lowers the value of the production over $210,000 a day.

Price Reductions in Other States

The new schedule of prices in Oklahoma and Kansas was made applicable in the North Central Texas fields by the Humble, Magnolia, Prairie, Texas and Gulf companies Tuesday. The Humble company also placed Gray and Wheeler Counties in the Panhandle on a common basis, and in its gravity schedule in those counties made 28 to 28.9 gravity crude $1. with a 4-cent differential up to 44 and above, which was posted at $1.44. In Crane, Upton and Crockett Counties, the Humble price was made 80 cents for 26 gravity and below, with a 4-cent differential for each degree of gravity up to 36 degrees and above, which was made $1.24.

The Magnolia Petroleum Co. made its new gravity schedule applicable to the Pine Island, Haynesville and Bull Bayou fields in Louisiana, and The Texas Company did likewise in the Louisiana fields in which it buys oil.

The Kay County Gas Co., oil buyer for the Marland Oil Co., met the Carter Oil Co.'s price schedule in Oklahoma and Kansas, and the Humble Oil & Refining Co.'s prices in Crane, Upton and Crockett Counties in Texas. The Kay County Gas Co. does not post in Wheeler or Gray Counties, and made no change in its prices in Hutchinson or Carson Counties.

On February 19, the Seep Purchasing Co. reduced the price of Keister, W. Va., Cabell, W. Va., and Somerset, Ky., crudes 20 cents per barrel.

The Seminole Situation

After two weeks of committee meetings and committee appointments, the situation in the Seminole Field of Seminole County is just as far from solution as ever. Committee has succeeded committee, and report after report has been introduced, with no apparent relief from the congestion which is present in the field.

Very little oil has actually been lost at Seminole, although about 10,000 bb'ls. daily has been forced upon the ground. On Tuesday of this week, the representatives of companies operating in the field again met in Tulsa; and after failing to agree upon any plan, and hearing the report of Ray Collins, the umpire who has been in charge of previous shutdowns, appointed another committee to attempt to work out some plan to shut down a certain number of the drilling wells and curtail the present daily production, which is 50,000 bbls. greater than the pipeline accommodations.

The new committee consists of Ray Collins, president of the Echo Oil Co.; John M. Lovejoy, vice president and general manager of the Amerada Petroleum Corp.; E. B. Reeser, president of the Barnsdall Oil Co.; R. A. Griffith, president of the Sinclair Oil & Gas Co., and James A. Veasey, general counsel of the Carter Oil Co.

In discussing the Seminole problem, little attention was paid to the fact that on the morning of the meeting the Carter Oil Co. reduced the price schedule of Oklahoma and Kansas; and at this time, the new price will have no bearing upon the situation which it is thought to have been designed to remedy.

The newly appointed committee will meet and report to the operators' committee on Thursday of this week.

BIG CHANGES IN PRODUCTION OF TEXAS OIL COMPANIES IN 1926

Fifty producing companies accounted for nearly 79 per cent of all the production reported by Texas oil companies and firms for taxation purposes in 1926. The total production reported was 159,795,873 bbls., which falls far short of the total quantity of crude oil reported as having actually been produced.

Fifty companies reported production of 125,982,998 bbls. and about 1,035 companies reported the balance, or 33,812,875 bbls., which was a little more than 21 per cent of the total reported.

The influence of Spindletop and the Panhandle is seen in the greatly increased production of the last half, and especially the last quarter, of the year.

The Gulf Production Co., for example, produced 6,377,079 bbls. in the first half and 12,004,983 bbls. in the last six months, leading all companies in the state. Much of the big increase came from the company's remarkable few acres in the Spindletop Field. The Phillips Petroleum Co., the name of which was not recorded in the first quarter of the year, and which produced 951,093 bbls. in the second quarter, is credited with 3,378,143 bbls. in the fourth quarter and 5,772,616 bbls. in the last half of the year. The Yount Lee Oil Co., which opened the deep sand horizon of the Spindletop Pool, produced 940,520 bbls. the first half of the year and 7,091,299 bbls. in the last half. The McMan Oil & Gas Co. reported 60,124 bbls. in the first quarter and 1,208,715 bbls. in the last quarter. The Continental Oil Co. jumped from 49,504 bbls. in the first quarter to 958,748 bbls. in the last quarter. The above are a few of the companies registering a very considerable increase in output. Attention is called to the increase in the production of the Dixon Creek Oil Co., Canyon Oil Co., Marland Oil Co., Prairie Oil & Gas Co., Roeser & Pendleton, Empire Gas & Fuel Co., Transcontinental Oil Co., Skelly Oil Co., Wilcox Oil & Gas Co., and Cranfill & Reynolds, all of which showed a marked upward course.

In the last quarter of the year a number of companies not listed among the 50 companies in the accompanying table reported a large production for October, November and December as follows: J. S. Abercrombie, 117,493 bbls.; Amerada Petroleum Corp., 139,349 bbls.; Derby, Haines & Williams, 131,509 bbls.; Dixie Oil Co., 273,111 bbls.; Echo Oil Co., 171,922 bbls.; Humphreys Corp., 117,003 bbls.; Independent Oil & Gas Co., 163,277 bbls.; Frank B. Kistler & Co., 263,330 bbls.; Navarro Oil Co., 123,374 bbls.; Phillips & Currie, 134,414 bbls.; Pantex Petroleum Co., 251,193 bbls.; Pandem Oil Corp., 103,522 bbls.; Ryan Consolidated, 99,919 bbls.; E. L. Smith Oil Co., 104,713 bbls.; Shappell Oil Co., 94,775 bbls.; Triangle Oil Co., 177,071 bbls.

RECORD OF 50 TEXAS OIL PRODUCERS IN 1926

	1st Quarter Bbls.	2nd Quarter Bbls.	3rd Quarter Bbls.	4th Quarter Bbls.	Total 1926 Bbls.
Gulf Production Co.	2,993,412	3,383,667	5,332,630	6,672,353	18,382,062
Humble Oil & Ref. Co.	3,119,971	3,160,740	3,319,736	2,876,289	12,476,736
The Texas Company	2,555,555	2,351,025	2,387,272	2,712,873	10,006,725
Magnolia Petroleum Co.	1,395,078	2,187,207	2,894,221	2,764,846	9,241,352
Big Lake Oil Co.	1,680,971	1,817,978	1,695,546	1,735,064	6,929,559
Yount Lee Oil Co.	502,328	438,192	3,145,052	3,946,247	8,031,819
Pure Oil Co.	1,350,357	1,211,148	1,131,901	1,084,188	4,777,594
Phillips Petroleum Co.	.....	951,093	2,394,473	3,378,143	6,723,709
Group 1 Oil Corp.	1,129,089	900,033	858,861	844,808	3,732,791
United North & South	1,517,581	918,885	.....	.....	2,436,466
Republic Production Co.	637,482	732,936	658,510	723,792	2,752,720
Rio Bravo Oil Co.	326,527	318,175	1,127,090	1,794,472	3,566,264
Marland Oil Co.	68,826	245,038	1,400,012	1,918,869	2,632,745
Continental Oil Co.	49,504	*760,000	789,522	958,748	2,557,774
Sun Oil Co.	400,798	361,775	536,783	764,467	2,063,823
Prairie Oil & Gas Co.	369,713	371,291	449,725	1,084,207	2,274,936
Dixon Creek Oil Co.	24,907	278,107	827,307	531,787	1,662,108
J. K. Hughes Dev. Co.	339,818	352,757	429,123	471,557	1,593,255
Simms Oil Co.	359,495	327,219	431,588	486,088	1,604,390
Atlantic Oil Prod. Co.	239,263	256,124	440,002	448,578	1,383,967
Roxana Petroleum Corp.	188,646	306,220	384,962	465,739	1,345,567
Grayburg Oil Co.	297,183	298,072	280,513	260,237	1,136,005
Roeser & Pendleton	22,756	270,644	438,109	572,843	1,304,352
Empire Gas & Fuel Co.	137,180	249,266	293,722	727,460	1,407,628
California Co.	203,890	221,387	228,631	225,435	879,343
Texhoma Oil & Ref. Co.	645,428	.....	.....	.....	645,428
Texas Pacific C. & O. Co.	199,141	204,163	195,834	192,071	791,199
Canyon Oil Co.	11,424	205,249	333,176	299,043	848,892
Transcontinental Oil Co.	8,786	8,102	529,426	509,804	1,056,118
Skelly Oil Co.	64,169	88,597	371,259	710,734	1,234,759
Rycade Petroleum Co.	240,350	116,616	149,463	116,998	623,427
Sinclair Oil & Gas Co.	151,629	178,041	160,958	120,540	611,168
Murchison & Fain Oil Co.	159,646	121,268	207,804	.....	488,718
McMan Oil & Gas Co.	60,124	95,330	321,619	1,208,715	1,685,788
Texas Pacific C. & O. Co. (by other companies)	143,077	137,936	125,252	110,635	516,900
Bridwell & Heydrick Oil Co.	142,334	147,674	121,997	132,792	544,797
Tidal Oil Co.	150,935	129,348	122,528	136,823	539,634
Landreth Prod. Co.	390,760	.....	.....	.....	390,760
Staley Wynne Co.	118,253	*119,000	120,191	66,858	423,302
Stroube & Stroube	133,457	114,950	94,601	70,322	413,330
Wilcox Oil & Gas Co.	18,275	94,791	207,707	306,697	627,470
Crown Central Pet. Co.	65,653	99,403	148,457	140,804	454,317
Westex Oil Co.	.....	121,711	186,529	.....	308,240
Mid-Kansas Oil & Gas Co.	112,625	103,413	91,279	84,725	392,042
Barkley & Meadows	*110,000	101,973	94,613	99,708	406,294
Petroleum Producers Co.	94,120	123,246	87,509	179,533	484,408
Witherspoon Oil Co.	127,031	92,298	74,754	65,103	359,186
Galena Signal Oil Co.	104,305	93,996	92,228	81,857	372,386
Perkins & Cullom	100,658	99,520	85,556	70,811	356,545
Cranfill & Reynolds	65,678	47,434	161,890	227,698	502,700
Total 50 companies	23,328,189	24,553,028	35,959,921	42,141,860	125,982,998
Total all other companies	6,498,835	6,519,354	9,459,414	11,335,272	33,812,875
Total production reported	29,827,024	31,072,382	45,419,335	53,477,132	159,795,873

*Estimated.

DISCUSSION OF PUMPS BY TULSA ENGINEERS

"Centrifugal Pumps Versus Reciprocal Pumps," will be the general subject discussed at the Tulsa meeting of the Mid-Continent section of the American Society of Mechanical Engineers which will be held at Mayo Hotel, February 25. The meeting will open at 8 p. m.

L. F. Bayer, vice president of the Tidal Refining Co., H. P. Porter, Gypsy Oil Co. and W. R. Layne, of the Byron Jackson Pump Co., will present prepared papers covering various angles of the general subject. Following the presentation of these papers those attending the meeting will be given an opportunity to take part in the general discussion. H. B. Bernard, vice president of the Sinclair Oil & Gas Co., who is chairman of the Mid-Continent section, will preside as chairman of the meeting.

Petroleum Engineers Issue Warning

Declare Hasty Legislation on Gas Conservation is Greatest Danger. Research and Records Needed

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 19.—Oil production engineers generally believe technical knowledge of the relation of gas to oil production has not advanced to the stage where specific legislation on gas conservation, such as that provided by the Marland bill introduced in the Oklahoma Legislature, can be recommended.

An open discussion on the matter from the standpoint of whether this new science were sufficiently established to permit a basis for general or specific legislation was held in connection with the meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers in New York, and brought forth some of the following opinions:

That conservation laws should be general in character and administered in specific cases by experienced production engineers.

That the greatest danger at present lies in haste.

That specific legislation cannot be outlined until such additional research is done and a great mass of additional records of performances of wells is collected and collated.

The Marland bill was not taken up specifically, the discussion being general in character, largely dealing with technical phases of the matter as presented in the paper on "Advances in Drilling and Production Methods" by Robert R. Boyd, Ward B. Blodget and N. W. Wickershaw of the Chanslor-Canfield Midway Oil Co.

Many Problems Remain

"As engineers, we have no interest in political, controversial or polemical discussions," F. Julius Fohs stated in opening the discussion. "It is not our interest here to either foster or antagonize any proposed legislation, but to give to the industry, which necessarily looks to us as the largest body of technical men discussing these problems, the best that we have in store."

He called attention to the newness of the subject of gas-oil ratios, stated the industry owed a debt of gratitude to E. O. Bennett and K. C. Sclater, production engineers of the Marland Oil Co., and to the company for permitting so early and complete a presentation of methods worked out by it.

"Although not a production engineer, I am engaged in the production of oil, and the companies with which I am associated have employed some of the best production engineers that the country affords," he said. "Our experience shows that, as yet, the knowledge which these engineers have is extremely limited, and that there are many problems on which they can throw no practical light at this time. While I am thoroughly sold on the principal of conservation of our oil resources, I feel that the 100 per cent ideal which some of our engineers and others are setting is unattainable, because it is "otherworldly" rather than worldly. I do not feel that our knowledge on this subject, at this time, is ample for specific legislation, nor do I believe that it is likely that sufficient data can be assembled to make possible other than the most general regulations in the matter of a gas factor in the recovery of oil. I feet that it should be a first task of our engineers to assemble and correlate, as far as practicable, specific examples for each and every field which, in turn, will lead to an accumulation of data, over a period of time, from a great number of wells, which can only be obtained by careful keeping of records and the installation of necessary measuring apparatus.

"It seems to be the general consensus of opinion, although there may be one or two exceptions, that the present state of our technical knowledge is such that we can not outline specific legislation until much additional research is done and a great mass of additional records of the performances of wells is collected and collated. Although some of the engineers expressed the opinion that the ultimate recovery per acre will be greater by application of the new methods, there are no data whatever to confirm this opinion and it will probably take years before it is available. We are getting out oil faster and we believe that the conservation of gas will tend to lift a larger amount of the oil faster, but the increase in ultimate recovery is still an open question and it is with ultimate recovery that conservation is chiefly concerned. The public should realize, however, that the engineers and the industry are honestly trying to solve this problem. It seems to me equally important in the matter of conservation of the oil resources of this country that overproduction be restricted, for it is inconceivable that the present rate of wildcatting or production can be maintained.

Gas Lift Compressors

In Mr. Boyd's paper it was brought out that use of the gas lift method in Oklahoma is being successfully applied to wells which under the swabbing method would cost approximately $100 a day, while flowing by gas lift the cost is as little as $12 or $15 a day. More important, however, these wells yield from 500 to 3,000 bbls. of oil per day with the introduction of a surprisingly small quantity of dry gas.

Following is the record of a typical gas lift well in the Tonkawa Field:

Data for Gas Lift Well in Tonkawa Field

Daily oil production, 1,100 bbls.; dry gas circulated, 350,000 feet per day; wet gas returned, 735,000 feet per day; gas-oil ratio, gas from the formation, 350 feet per bbl.; flowing pressure, 230 pounds per square inch (gauge); direct gas circulating cost (approximate), 1.1 cents per barrel.

"Such results as these are much more favorable than average results in California, which might be illustrated by the following record:

Data for Gas Lift Well in Dominguez Field

Daily oil production, 550 bbls.; dry gas circulated, 550,000 feet per day; wet gas returned, total, 1,100,000 feet per day; gas-oil ratio, gas from the formation, 1,000 feet per barrel; flowing pressure, 140 pounds per square inch (gauge); direct gas circulating cost (approximate), 3.5 cents per barrel.

"Although much experimenting has been done in California, efficiencies that even approach those for the Mid-Continent are seldom obtained. Several reasons may be advanced for this. California flowing wells, excepting in one or two fields, such as Richfield, have higher gas-oil ratios than those in Seminole Field, for example, where natural flowing gas-oil ratios are often 500 feet per barrel. The result is that California wells usually flow to productions of 100 or 200 bbls. per day, unless some outside factor such as water causes them to stop. Also, California wells frequently flow one or two years before reaching the end of their natural flowing lives and remove much more oil from the formations than Mid-Continent wells, before they die.

"Although it cannot be said with certainty, it would appear that the nature of the production formations in the Mid-Continent wells, mentioned previously, are conducive to more free flows of oil, and thus would feed more fluid into the hole in a given length of time average California well. This point is almost proved by certain wells in northern Oklahoma that have produced over 1,000 bbls. per day by gas lift for several months.

"Despite its costs, for gas lift is a relatively inefficient pumping method mechanically, it is certain that the gas lift has come to stay. Its most useful application will doubtless come in future years when wells 6,000, 7,000 and 8,000 feet deep, or perhaps deeper, must be pumped."

Greatest Danger in Haste

Regarding gas conservation, Mr. Boyd and his coauthors said:

"Doubtless the outstanding development of the year in oil production was the action of the directors of the American Petroleum Institute in endorsing the principles of gas conservation, which should lead to greater recoveries of oil from sands. This attitude of the industry's leaders represents a great stride in production engineering, for engineers began developing the principles of oil recovery and preaching the doctrine of efficient use of gas in recovering oil only a few years ago.

"Gas conservation in oil production is now a recognized principle, and to certain engineers, who are numbered as members of the American Institute of Mining and Metallurgical Engineers, as well as to engineers of the United States Bureau of Mines, must go the credit of bringing this important problem to the attention of the industry's leaders.

"Although praiseworthy in the extreme, the American Petroleum Institute's action at the recent meeting in Tulsa is fraught with danger. Recommendation of legislation to prohibit gas waste is one matter, but writing a law that will be equitable is another. Conservation laws should be general in character and administered in specific cases by experienced production engineers. Attempts to set a maximum limit on gas-oil ratios in a statute, as has been suggested, would often be unfair and confiscatory both to oil operators and royalty holders.

"The greatest danger at present, therefore, lies in haste. This subject is new to the industry and to the state and Federal Governments. Many detailed problems must be considered and solved fairly before laws can be enacted. To expect state Legislatures to enact wise laws regarding the details of this extremely technical subject is unfair; to advise them wisely at this time is not within the power of the industry's best-informed production men."

Real Progress Made

A. W. Ambrose, manager of production, Empire Gas & Fuel Co., Bartlesville, said:

"There has been real progress in the Mid-Continent in the application of the air or gas lift. This progress was hastened due to conditions in Tonkawa, Garber and the Seminole County, Oklahoma, pools. In Seminole all of the gas produced was that absorbed in the oil and as a result of no extraneous gas either in the pores of the oil sand, or in a sand above the oil sand, the wells soon ceased to flow from their depth of 4,000 feet. There still existed sufficient rock pressure to allow the wells to produce several thousand barrels of oil per day by the aid of the air or gas lift, which could never have been realized by swabbing or pumping. It is certain in these fields that the air lift will recover the oil much faster than without its application and I believe recover several thousand barrels

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EXPERIMENTATION, NOT LEGISLATION, NEEDED NOW, SAYS CHAIRMAN LOVEJOY

NEW YORK, Feb. 19.—Vice President John M. Lovejoy, of the Amerada Petroleum Corp., the new chairman of the Petroleum Division of the A. I. M. E., believes that experimentation rather than legislation is needed at this stage of the consideration of gas conservation. His views follow:

Mr. Lovejoy's Opinion

The Federal Oil Conservation Board in its report to President Coolidge recommends among other things "systematic research and experiment toward securing a larger proportion of the oil from the sands," and "methods to prevent wasteful flush flow and overproduction." The report brings out the right of the police powers of the state which can be used to prevent waste of natural resources. It says state legislation is preferable to Federal authority. The report continually refers to the matter of conserving gas pressure in the oil sands. The American Petroleum Institute has worked very splendidly with the Federal Oil Conservation Board and in order to further cooperate a committee was appointed by the president of the A. P. I. at its annual meeting in Tulsa, Okla., to consider chiefly the question of gas conservation with respect to oil. This committee in due time returned its findings in the form of recommendations to the A. P. I. that it foster state legislation relative to oil and gas conservation.

Immediately following this report, Mr. Marland, chairman of the committee, prepared a most comprehensive bill covering this matter and presented it to the Oklahoma Legislature. It should be understood that this bill does not have the indorsement of the Conservation Committee of the A. P. I., nor officially of the A. P. I. directors and represents only Mr. Marland's idea of what should be done and how to do it. The industry was given no chance to discuss the bill before it was presented to the Legislature.

Reasons for Opposing It

The Oklahoma division of the Oil & Gas Association has had several meetings relative to the bill to decide what action it should take if any with regard to it. Many statements have been issued by leading oil men against the bill, in fact I have not heard a single voice raised in its defense. The chief reasons for the unanimous disapproval of the industry are as follows:

The bill involves a compulsory method for operating all wells—it violates the fundamental principles of property rights and is against all principles of American business—it empowers the state to control and limit both oil and gas production—it deprives the operator of initiative and freedom of action—it would add a huge burden of expense to the industry for equipment and operation of the plant.

The reason why I am spending so much time discussing this Marland bill is because the fundamental basis of the whole thing is a compulsory employment of an engineering principle called gas-oil ratio and I want to emphasize the point that this principle is only a theory. This

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Added Importance to Crane County

Church & Fields Pool in Western Texas Rivals Big Lake and Not a Year Old. Lake Shipping Facilities

By C. D. Lockwood

When the Simms Oil Co. and Atlantic Oil Producing Co.'s No. 2 University in what is known as the Church & Fields Pool of Crane County, west Texas, flowed 330 bbls an hour, or at the rate of 7,920 bbls a day, last week before being shut in, the west Texas record for initial production from one well was nearly broken. The only barrier in this territory between the new well and an all-time record is the Big Lake Oil Co.'s No. 18 University which during April of 1925 came in flowing better than 8,700 bbls. of high gravity crude. The Big Lake producer was also superior in respect to the quality of oil, testing some 6 degrees higher than the Simms-Atlantic oil, which is 33 degrees Baume. The combined Church & Fields and Gulf-McElroy Pools, however, may yet yield several gushers larger than the pride of Reagan County since the Eastland Oil Co. and Collett's No. 1 University, diagonally southeast of the big Simms-Atlantic well, is holding up close to its initial flow of more than 1,800 bbls. and is just in the top of the big pay at 2,905 feet, whereas the big producer was drilled in much deeper. And as to area, the Crane County Field may easily surpass Big Lake in extent if the acreage in between the two pools proves productive, as now appears quite likely. The distance between the Gulf Production Co.'s No. 2 State-Lasseter, farthest north producer in the Church & Fields sector, and the same company's No. 4 J. T. McElroy, farthest south well in the McElroy Pool, is almost 6 miles.

TABLE OF WELLS IN CHURCH & FIELDS POOL, CRANE COUNTY, TEXAS

Company, Well No. and Farm—	Date	Elevation Feet	Top Salt Feet	Top Lime Feet	Sand Record Feet	Depth Feet	Prod'n Bbls.
Duffy Brothers et al, No. 1 University (Sec. 8)	Not comp.	2,552	1,035	....	....	*	....
Eastland Oil Co., No. 1 University	1-30-27	2,573	1,105	2,780	2,890-2,905	2,906	1,825
Gulf Production Co. (1), No. 1 J. T. McElroy	7-21-26	2,592	1,000	2,681	2,728-2,750	2,750	500
Gulf Production Co., No. 2 J. T. McElroy	11-26-26	2,601	975	2,697	2,827-2,906	2,906	162
Gulf Production Co., No. 3 J. T. McElroy	9- 1-26	2,583	959	2,647	2,721-2,818	2,818	265
Gulf Production Co., No. 4 J. T. McElroy	12-29-26	2,611	980	2,652	2,706-2,833	2,833	5,000
Gulf Production Co., No. 5 J. T. McElroy	1-15-27	2,605	1,035	2,643	2,689	2,824	3,000
Gulf Production Co., No. 6 J. T. McElroy	Not comp.	2,627	1,035	....	....	*	....
Gulf Production Co., No. 7 J. T. McElroy	Not comp.	2,561	....	....	....	*	....
Gulf Production Co., No. 1 J. T. McElroy-B	Not comp.	2,584	....	....	....	*	....
Gulf Production Co., No. 1 J. T. McElroy-C	Not comp.	2,795	1,655	....	....	*	....
Gulf Production Co. (2), No. 2 J. T. McElroy-C	1-28- 7	2,656	1,536	†	....	4,080	Dry
Gulf Production Co., No. 1 Crier-McElroy	9-12-26	2,600	980	2,657	2,700-2,749	2,749	2,280
Gulf Production Co., No. 2 Crier-McElroy	10-22-26	2,595	950	2,660	2,727-2,828	2,828	652
Gulf Production Co., No. 3 Crier-McElroy	10-27-26	2,602	....	2,668	2,800-2,850	2,850	225
Gulf Production Co., No. 4 Crier-McElroy	12-23-26	2,596	1,015	2,659	2,715-2,834	2,834	600
Gulf Production Co., No. 5 Crier-McElroy	Not comp.	2,605	966	....	....	....	....
Gulf Production Co. (3), No. 1 Crier-McElroy-A	10-22-26	2,585	958	2,643	2,718-2,728 2,753-2,760	2,918	800
Gulf Production Co., No. 2 Crier-McElroy-A	1-16-27	2,592	978	2,633	2,728-2,813	2,813	1,320
Gulf Production Co., No. 3 Crier-McElroy-A	Not comp.	2,576	....	....	....	....	....
Gulf Production Co. (4), No. 1 State-Lasseter	11-25-26	2,608	1,165	2,894	2,978-3,070	3,077	120
Gulf Production Co., No. 2 State-Lasseter	2-10-27	2,603	1,230	2,888	2,964	2,980	1,320
Gulf Production Co., No. 3 State-Lasseter	Not comp.	2,600	....	....	....	....	....
Gulf Production Co., No. 4 State-Lasseter	Not comp.	2,608	....	....	....	....	....
Llano Oil Co. (5), No. 1 University	2-10-27	2,593	1,000	2,855	....	3,201	Dry
Magnolia Petroleum Co. (6), No. 1 Hardwick	.....	2,567	1,110	2,850	2,944-2,987	2,987	....
Magnolia Petroleum Co., No. 1 University	4-19-26	2,606	1,145	2,925	3,029	3,030	190
Magnolia Petroleum Co., No. 2 University	10-12-26	2,597	1,165	2,912	3,001-3,038	3,027	125
Magnolia Petroleum Co., No. 3 University	2- 1-27	2,577	1,157	....	3,003-3,040	3,040	97
Magnolia Petroleum Co., No. 1 O'Keefe-University	9- 3-26	2,594	1,170	2,905	2,982-3,052	3,052	100
Magnolia Petroleum Co., No. 2 O'Keefe-University	.....	2,587	1,180	2,900	2,975	3,026	155
Magnolia Petroleum Co., No. 3 O'Keefe-University	.....	2,609	1,160	2,832	2,957-2,967	2,967	438
Magnolid Petroleum Co., No. 1 State-Lasseter	.....	2,597	1,150	2,830	3,014-3,045	3,045	27
Prairie Oil & Gas Co., No. 1 University	.....	2,591	1,140	....	....	3,050	120
Prairie Oil & Gas Co., No. 2 University	.....	2,591	1,148	....	....	3,036	105
Prairie Oil & Gas Co., No. 3 University	.....	2,597	1,137	2,885	2,998	3,050	115
Prairie Oil & Gas Co., No. 4 University	.....	2,581	....	....	....	....	....
Prairie Oil & Gas Co., No. 5 University	.....	2,582	....	....	....	....	....
Prairie Oil & Gas Co., No. 6 University	.....	2,588	....	....	....	....	....
Prairie Oil & Gas Co. (7), No. 1 Collett-University	Not comp.	2,532	990	2,955	.....	3,620	....
Simms & Atlantic, No. 1 University	.....	2,588	1,134	2,865	2,912	2,962	201
Steadham & Thrasher (8), No. 1 University	2- 3-27	2,506	988	2,752	2,939-2,965	3,161	15
Tidal Oil Co., No. 1 University-B	9-15-26	2,588	1,135	2,905	3,015-3,050	3,050	160
Tidal Oil Co., No. 2 University-B	11-29-26	2,587	1,134	2,906	.....	3,049	90
Tidal Oil Co., No. 1 University-C	12-10-26	2,589	1,142	....	.....	3,151	35
Tidal Oil Co., No. 1 University-D	Not comp.	1,093	....	....	.....	3,151	* ....
Simms & Atlantic (9), No. 2 University-A	2-12-27	2,574	1,125	2,840	2,889-2,953	2,953	7,000
Simms & Atlantic, No. 1 University-B	Not comp.	2,580	1,100	....	.....	....	....
Church & Fields, No. 1 State-Lasseter (Sec. 34)	Not comp.	2,580	1,100	....	.....	....	....

*Drilling. †Not reached

Notes—(1) Discovery well of McElroy Pool. (2) No lime to 4,080 feet; had 1,500 feet of salt water at 4,035-50 feet. (3) Formerly W. H. Dunning's well. (4) Made 1,500 bbls. sulphur water at 2,550 feet January 18-26. (5) Had 2,300 feet sulphur water at 3,201 feet. (6) Water at 2,530 feet. (7) Sulphur water at 3,290 feet filled the hole; still drilling. (8) Water at 3,157-06 feet; shot with 100 quarts. (9) Second largest well in West Texas.

The former well started flowing 120 bbls. an hour from pay topped at 2,964 feet and drilled to 2,980 feet but had to be pinched in to 20 bbls. hourly because the Humble's 4-inch line couldn't handle such a volume of crude and the latter well flowed at the rate of 5,000 bbls. daily from total depth of 2,833 feet but likewise had to be pinched in because of inadequate pipeline facilities.

The accompanying map and table of wells in and around the two pools show the activity and the results which have made this one of the busiest spots in west Texas. It would be still busier if the Gulf Production Co. didn't own so much of the acreage between the two pools, but as it is there are 57 locations, rigs and wells drilling shown on the map in addition to the 31 producers and 2 dry holes.

Only One Pipeline

The pipeline situation has retarded development seriously in the whole west Texas area as there is but one pipeline serving the district and that is the Humble's looped 8-inch from McCamey to Comyn with a capacity of 40,000 bbls. The Big Lake Field alone has a production of 30,000 bbls. daily, leaving just 10,000 bbls. of pipeline capacity to serve all of Upton and Crane Counties and Pecos County's new sensational pool. The Humble has had a 6-inch line from McCamey as far as the McElroy wells and a 4-inch from there to the Church & Fields district. This system is now being augmented by an 8-inch from McCamey and the Gulf Production Co. has about 20 miles of its 10-inch line from Midland to the McElroy Pool laid. The Gulf is also building four 55,000-bbl. tanks at Midland. No definite announcement of a pipeline by any other company has been made as yet although the Magnolia Petroleum Co., the Simms Oil Co. and the Atlantic Oil Producing Co. are all prospective customers for the pipe manufacturers. All of them apparently are due to produce a lot of crude in this district.

Eleven Months Old

The Church & Fields Pool was discovered March 19, 1926, by the operators for whom it was named. The original well, which was located in the NW cor. SE SE. Section 34, Block 30, produced 190 bbls. at 3,029-30 feet and the three wells on this 40 acres are now doing 150 bbls. together. The Magnolia Petroleum Co. bought out Church & Fields interests within a couple of weeks after the discovery, paying $400,000. A couple of weeks after that, the Simms Oil Co. and Atlantic Oil Producing Co. paid $100,000 in cash and $400,000 in oil for 1,280 acres belonging to O'Keefe & Collett and others and it is on one of the quarter sections acquired in this deal that the biggest gusher is located. From all appearances at this time, O'Keefe, Collett and their associates will receive almost if not all of the full sale price and may receive it rather quickly.

One of the interesting tests in the field is that of Cromwell & Jones in the NW cor. SW, Section 47, just half a mile south of the Eastland Oil Co.'s 1,800-bbl. well. There are several stories regarding the acquisition of this quarter section by Jones but it is said that it cost him just $4 an acre. He was drilling a well for Church & Fields at the time the discovery of this pool was nearing completion and was offered this 160 acres at $4. The way the story goes, he made the trade just a day or two before the well came in. Now his lease is regarded as one of the most valuable in the field.

It costs about $30,000 to complete a well in this area, leaving the 6-inch, 8-inch and 12-inch strings in the hole.

The accompanying table of wells in the area covered by the map was compiled largely from one source. The elevations are uniform and the figures given under the heading "Top of Lime" represent a uniform horizon.

Oil and Its Relation to Banking

West Texas Bankers Are Given the Views of One More Familiar With Handling of Oil Credits

By A. E. Thomas*
Vice President, Continental National Bank, Fort Worth, Texas

The relation of the oil industry to the banking business is an interesting and important subject at this time to Texas bankers and particularly to bankers in west Texas. With such widely scattered petroleum-producing areas and the constant opening up of new territory by "taming the wildcats," no banker in this section can escape the possibility of being called upon to grasp the opportunities of managing an "oil field bank," and at the same time facing paralleling problems.

The petroleum industry is comparatively young, oil having been first produced in commercial quantities in Pennsylvania in August, 1859; and in Texas the production of oil and its many allied industries only covers a period of 26 years. Geologists inform us that petroleum is produced from rocks of various ages, which they broadly classify as old, very old, and others comparatively young; and while some states and countries produce oil from either the very old, or the old, or the younger strata, in Texas, we are informed that we produce oil from all these formations.

The importance of oil commercially is emphatically indicated by a few facts and figures to which I direct your attention:

The total invested capital in the oil industry in the United States is now $10,000,000,000; and in Texas, beginning with the discovery of oil in Spindletop in 1901, with no investment prior to that year, the activity of the industry in our State has been increasing yearly until there is now invested in Texas more than $1,250,000,000, including investments in leases, drilled wells, pipelines, refineries, tank cars, and sales equipment. Texas is now producing over 600,000 bbls. of crude oil per day, with an annual value as a crude product of around $500,000,000, and is approximately one-fourth of the daily production of the total for the entire United States, which the most recent figures place at 2,388,000 bbls. per day. From the production of crude oil in the United States there was last year produced 12,298,440,000 gallons of gasoline, which figured at 10 cents per gallong represents a value in that product alone of $1,229,844,000.

Immense Value of Gasoline

In order that you may have a comparative understanding of the magnitude of this great industry, the value of the gasoline alone, to say nothing of all other types of petroleum products, exceeds the value of all automobiles produced in the United States in any year.

Since Texas produces a little in excess of one-fourth of all the crude oil—if she manufactured only her own production—you can readily see what substantial totals, only, the gasoline output attains. But you may be interested, and no doubt will be, to know that the refiners in this State, not only manufacture the oil produced in Texas, but in addition thereto, they use over 100,000 bbls. per day in excess of the total oil that is produced in our State, which additional consumption is transported by pipelines and tank cars to Texas refineries. There is invested in the pipelines for the transportation of oil in America, over $800,000,000. Texas has the largest mileage of pipelines of any state, except Oklahoma, and the total mileage in Texas is approximately 20,000 miles with new lines being constructed constantly.

Largely Outside Capital

I have stated the large amount of money invested in this industry in Texas, and I think it is an admitted statement of fact, that funds invested in this industry have been contributed chiefly in the form of outside capital brought into our State in large amounts, and yet, I am informed that the four largest companies operating in Texas produce only about one-third of the oil that is produced here, and that the remaining two-thirds is produced by hundreds of smaller companies and individuals, indicating a wide distribution of operations, and necessarily, a distribution of the profits and persons employed.

Pays Big Taxes

We are always interested in taxes, and who pays them, and from what sources our tax receipts come. In some communities where oil has not yet been produced, or where there is not some visible prospects of its production, or where there are no refineries, it may not be understood to what degree the oil industry is contributing to our tax revenues and bearing its share of the burden. The oil industry in Texas collects for the State a sales tax on gasoline of $4,000,000 a year; at the same time, it pays direct ad valorem taxes on the values of its properties at the same rate that is paid by other industries, and in the same proportion as all other taxable property. In addition to the gasoline tax, they pay annually a gross production tax of approximately $8,000,000 per year. I am told that the total aggregate taxes of this industry is in excess of 40 per cent of the total taxes paid to the State. Not only are they substantial taxpayers to the extent stated, but to what other industry can we point, that collects taxes and turns them over to the State, free of collection expenses, as they do on both gasoline and gross production, with the very minimum expense to the State of the Oil and Gas Department? The aggregate taxes paid by the oil industry in Texas today exceeds the total taxes received by the State from all sources 10 years ago.

Increases Land Values

The industry is not only as I have stated, outstanding in its invested capital, largely brought into our State from the outside—a tremendous taxpayer, with pay rolls of more than $250,000,000 annually—but in addition to all this, the companies have been spending for bonuses and leases, some $200,000,000 to $300,000,000 annually, during the last few years. You gentlemen, as business men, recognize the oil companies, firms and individuals, to be creators of new wealth, not only in the oil produced, and in the many refined by-products, but also in new values and income to the land owners, through lease money and bonuses, even where oil is never produced. The income from royalties on producing properties is enormous.

Importance to Bankers

I am sure I have given you enough facts and figures to establish beyond question the importance of this industry, and that it undeniably takes its place as an important one in its relation to banking. Surely banking, and bankers, are interested in placing their facilities in use for this great industry in every proper way, as they have at all times and everywhere responded to the needs of other industries. Let us now consider for a few moments some of these relations, particularly in those communities where oil is being produced, and the correct general policies of bank management.

It will not be necessary to discuss taking the deposits from sale of a valuable lease, or check from the pipeline company—all of you bankers know how to ascertain whether the check is good, and encourage your customer to leave it with you. Your problems will arise when the industry, or the customer asks you to do something for him, and his needs will involve the granting of credit in some form. If you accept an escrow, it is not without some form of responsibility. You may handle hundreds of them without trouble, but you can get a lawsuit growing out of an escrow. I will not undertake to discuss the matters of escrows at this time—only suggest that you protect your bank from assuming any hazardous responsibility.

It would be presumptuous on my part, I am sure, to even suggest that you cannot safely extend credit on non-producing leases—the hazard is evident. I want to differentiate between those operators engaged in the "oil business" and those engaged in the "oil game." The latter is not a business. Usually a side issue—a gamble, or speculation, and though such investments do sometimes return enormous wealth, the percentage is small, compared to the total number of persons who have attempted to get rich in that way and have failed. But the oil business is different—it is a business to which thousands of men are giving their entire time—have been in the business for years—will never do anything else. Their grandfathers were drillers, or operated a lease, or managed their business, as an executive. Thousands of others are being trained annually, not so different from the young man, who is trained in your bank, or in our stores. To these, it is a business.

Safety in Oil Loans

In my opinion, loans can be properly made to the oil business with equal, or more safety than any other business in operation today. Experience in the Mid-Continent Field has proven in times of stress that conservatively-made oil loans are retired more quickly than those made to any other basic industry. During the deflation period after the World War, Tulsa, Okla., paid its indebtedness to the Federal Reserve Bank quicker than than any other reserve city—an evidence of the solvency and liquidity of oil credits properly extended. Loans on storage, both of crude and refined products against the warehouse receipts of a responsible pipeline or storage company, and in some instances with a proper trustee as custodian, with a satisfactory margin, treating the oil in storage as a commodity, are thoroughly safe loans, and ones that can be collected because through ready daily markets the commodities can be immediately converted into cash to meet the maturity of the obligations. Such loans, of course, are properly protected by fire and other insurance. Loans can also be safely made on production, but representing a different and more intricate problem, and one that needs careful study and judgment by one competent to so judge.

The age of the well should be considered, the type of producing strata, such as sand, shale, rock fissure, etc.

The history of the field with respect to its life; a newly developed field should be treated most carefully until there is an experience to guide you. The flush, settled, and recent production of the wells; the grade of the oil—present market price for crude, and price outlook—all are governing factors in analyzing the credit.

With our bank, we have, with practically no exceptions, extended loans that were assured of liquidation in full within a period of six months, through the

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*An address before the Annual Group Meeting of the Texas Bankers Association, San Angelo, Tex., February 15, 1927.

AMERICAN PETROLEUM INSTITUTE NAMES COMMITTEE ON CORROSION

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 19.—Appointment of a temporary committee to consider corrosion is announced by President E. W. Clark of the American Petroleum Institute. The committee is headed by F. N. Speller of the National Tube Co. It will recommend to the institute what its policy should be in relation to corrosion work and will suggest the character and scope of the investigation necessary.

The initiation of this investigation apparently means that the institute will actively take over corrosion investigatory work in all branches of the industry and will perfect a comprehensive voluntary organization for the purpose. A general committee on corrosion will be appointed and the work subdivided by main branches of industry activity with groups and subgroups.

The group session on corrosion at the meeting of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers just held, recommended the appointment of a committee to cooperate with the temporary committee named by the American Petroleum Institute.

Committee Named

Mr. Clark's statement follows:

"President E. W. Clark of the American Petroleum Institute announced the appointment of the following temporary committee:

"F. N. Speller, National Tube Co., chairman.

"E. P. Bly, Standard Oil Co. of California.

"W. G. Heltzel, Sinclair Oil & Gas Co.

"F. Ray McGrew, Standard Pipe Line Co. of Louisiana.

"H. F. Perkins, Gulf Refining Co.

"Ralph J. Reed, Union Oil Co. of California.

"C. R. Weidner, Prairie Pipe Line Co.

"C. C. Lakin, Standard Oil Co. of Indiana.

"This committee is expected to recommend to the institute what its policy should be in relation to corrosion work and to suggest the scope and character of investigation necessary to carry on this work effectively. Further, the committee has been asked to recommend an appropriate form of organization and the personnel of a general committee on corrosion. In order to make these recommendations it will be necessary for the temporary committee to study and classify the important corrosion problems and also to ascertain what steps have been taken toward the prevention of corrosion by the various branches of the petroleum industry or others."

Chairman Speller's Views

An estimate was made at the corrosion meeting of the A. I. M. E. that petroleum industry losses from corrosion amounted to something like $500,000,000 annually. Corrosion problems are being tackled by industry generally. Mr. Speller in his remarks before the meeting, of which he was chairman, said:

"Interest in the corrosion problem seems to continue without abatement and

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The Gas Lift in Actual Practice

Use in the Texas Panhandle Field Has Been Satisfactory to Engineers of Marland Oil Co.

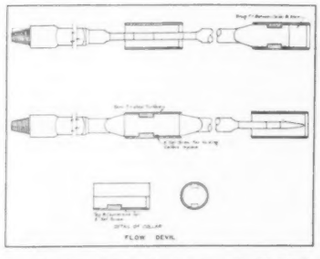
By E. O. Bennett and K. C. Sclater*

In the Panhandle Field of Texas the method used by the engineers of the Marland Oil Co. for starting a gas lift well is as follows:

Gas is first admitted to the tubing and allowed to pass up through the oil between the tubing and casing for about one hour. The aeration of the column is then sufficient to cause the mixture to flow from the well. As soon as the flow starts the direction of the input gas is suddenly reversed, gas being applied to the annular space and the tubing is opened to flow. The volume of the aerated oil in the space between the tubing and the casing is much greater than the volume of the tubing so that a lowering of the level in the annular space by gas pressure causes the light mixture in the tubing to rise rapidly and flow out, thus starting the well. By using this method, wells flowing from 3,000 feet have been started on a maximum working pressure of 250 pounds, whereas 600 pounds pressure is often not sufficient to "kick off" the same wells directly through the tubing. The working pressures in most of the wells in the Panhandle vary from 125 to 175 pounds. The production of these wells ranges from 5 to 1,700 bbls. per day.

Super Flushing

Another method called "super-flushing" is used for starting wells on the gas lift in the Panhandle area. It consists of starting the gas through the tubing similarly to the method previously described. After the flow has been started from the annular space, a large volume of gas is suddenly released through the tubing, expelling practically all the aerated fluid in the well. The direction of flow is then reversed and the flow started through the tubing. This method requires less time and lower pressures than any other method. A well requiring a normal working pressure of 180 pounds has been started in this manner on a maximum pressure of 230 pounds. Flow is established into the tubing at the well head within two



Flow Devil, used in the Panhandle Field for removing paraffin from walls of the pipe in oil wells.

or three minutes after "super-flushing" takes place.

Rocking or reversing wells that will normally operate on pressures up to 175 pounds eliminates the necessity of installing high pressure compressors for "kick off" purposes and permits the construction of larger plant capacity for a given amount of money. Figure 1 shows the "Christmas tree" arrangement used by the Marland Oil Co. in the Panhandle district. Connections are provided so that the flow may be obtained either through the casing or the annular space between the tubing and casing the same as in California practice. This picture was taken during cold weather and a close observation will show considerable oil which has congealed to a solid mass on the valves and piping.

High Paraffin Content

In the Texas Panhandle the temperature in the oil bearing formation is but 85 degrees Fahrenheit, as compared with 120 degrees Fahrenheit in most fields producing from the same depths. The oil in the Panhandle fields congeals to a solid mass at approximately 60 degrees Fahrenheit. This allows but a 25-degree drop in temperature in producing the oil from the formation to the surface. Since isothermal expansion of the extraneous gas injected, and natural gas in the oil, cannot be obtained, the refrigerating effect of the gas upon expanding lowers the temperature of the oil and causes paraffin to deposit in the tubing and flow lines.

The application of heat has been found by trial and experiment to be but partially successful under the severe conditions that exist in the Panhandle district.

The Useful "Flow Devil"

A device called a "flow devil" was designed and patented by N. O. Miller, production engineer for the Marland Oil Co. in the Panhandle district. This device is shown in Figure 2. It consists of two annular collars supported on a mandrel which is provided its upper end with a standard pin joint. The mandrel is flattened where it passes through the sleeves to offer the minimum resistance to flow. One cutter is all that is necessary to remove the paraffin from the walls of the tubing or casing. This is accomplished by the cutter at the bottom of the tool. The upper sleeve or cutter is used as a guide to prevent the tool from canting and hanging up in the breaks at the tubing joints. The scraper is run in the well on a sinker bar and set of short stroke jars. The large scraper shown in Figure 2 is readily lowered into 4½-inch tubing against a flow rate of 3,000 bbls. per day and 2,000,000 cubic feet of gas. The scraper as used has been found more successful than the application of heat in keeping wells on the gas lift free from paraffin. It is only necessary to run the scraper through the flow line once a day and in some cases once every second and third day.

Eliminates Swabbing

The development of the paraffin has made possible the elimination of swabbing wells in the Panhandle district. Until the scraper was developed, it was practically impossible to economically produce small wells in this territory. Pumping has given so much trouble on account of paraffin that in most cases it would not pay. Wells of 5 and 10 bbls. that could not be operated except at a loss by swabbing and pumping have been kept on steady production by flowing with the gas lift through small tubing. While the gas factor for small wells is somewhat higher than that for large wells, it has not been excessive and has permitted operating wells where as much as 15 cents per 1,000 cubic feet must be paid for gas

Excess Gas Due to Recycling

In passing through the complete cycle as shown in Figure 12, a certain amount of gas (natural gas factor), is taken from the oil-bearing formation over and above

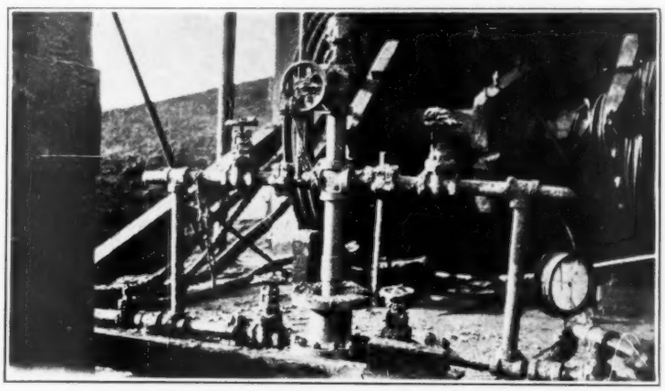
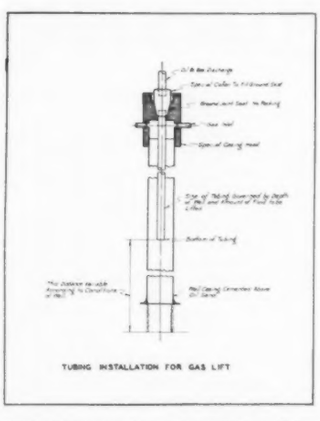


Figure 1. Christmas tree arrangement used in the Texas Panhandle Field by the Marland Oil Co. The photograph was taken in cold weather and the congealed oil may be plainly seen on the pipe and connections.

the amount required for return to the well. This surplus gas, after being compressed, is discharged from the gas lift system through a pop valve set at a predetermined pressure, to a fuel system which serves lease requirements. By handling the residue gas in this manner waste is reduced to a minimum and it becomes unnecessary to draw no other gas wells to supply the fuel system for general lease operations.



The above new type of gas lift head is of the packless type. The head consists of a forging turned and threaded to fit the casing oil string. The upper part of the head has a tapered seat turned and ground to the angle shown. A special collar, ground to the same taper as the seat, is used on the tubing. The weight of the tubing holds the collar in the seat. On account of the small area exposed to pressure the head will seat tightly against extremely high pressures. Two thousand four hundred feet of 2½-inch tubing provides sufficient weight to hold pressures in excess of 5,000 pounds per square inch. A heavy grease is smeared over the tapered collar before it is seated, forming a perfect seal. A common tubing spider and slips are set on top of the head when it is desired to change the position of the tubing.

Increases Gasoline Content

It is interesting to know that gas carrying but a trace of gasoline when injected into a well returns carrying a content as high as 1.6 gallons per 1,000 feet. The normal content of this gas, previous to the gas lift installation, was but 1.0 gallon per 1,000 cubic feet.

Controlling Bottom Water

In some locations oil-bearing strata are immediately above and in direct contact with water-bearing formations. This is particularly true in the Panhandle area where the top of the water-bearing strata exists at approximately sea level elevations. Above the oil formation in this region there exists a gas-bearing stratum. This upper gas formation, while separated by as much as 200 feet from the oil, is open to the oil formation in spots.

Where wells have been producing by swabbing heavily or by flowing through a 6⅝-inch oil string with extremely large gas factors, the pressure in the upper gas region adjacent to the wells has been dissipated and the water surface has risen under hydrostatic pressure due to the decreased gas pressure above.

The extreme reduction of this pressure has caused the water to cone up at the well and eventually break through the oil strata, trapping off the oil and causing the well to produce water. If swabbing is continued under these conditions, or the natural flow allowed to take place, the well will continue to produce nothing but water. This will also occur if a well on the gas lift is improperly handled.

Conditions such as described above can best be remedied by use of the gas lift under back pressure. In most cases where proper installation is made the resistance to flow furnished sufficient pressure on the sand without the necessity of surface control. The best arrangement for flowing a well producing water is to pump the gas down between the casing and tubing and produce the oil through the tubing. The tubing may be raised off bottom to a point where the fluid head between its lowest extremity and the water surface, plus the additional head required to flow the oil through the tubing, will exert sufficient pressure on the sand to prevent the water from coming up through the oil. If the tubing is maintained too close to the water level, it will tend to make the well produce water to the exclusion of oil. Where a proper pressure is maintained to keep the water level down, the extrance of oil to the well will take place over the top of the water surface by lateral travel instead of cross bed travel and the water will be held in check. When water breaks through and wets an oil-producing sand it excludes the oil by virtue of its greater surface tension. Water also migrates through a sand with less resistance on account of its greater fluidity.

In some wells a control of pressure is extremely critical. A few pounds increase or decrease on the sand will materially change the oil and water ratio where wells are producing some water.

Use of the Flow Bean

Another method of holding back pressure on the sand when using the gas lift is by restricting the flow from the well by the use of a valve or flow "bean." Adjustable flow "beans" have been found most desirable for this purpose as they are readily changed. Where it is desired or necessary to impose back pressure on the producing formation, the method of raising the tubing is more economical and should be used, especially where the fluid will rise naturally to a point high enough to affect the desired pressure on the sand

(Continued on Page 139)

*Extracts from paper presented at meeting of the A. I. M. E. in New York, February 14-17. Mr. Bennett is chief production engineer of the Marland Oil Co. of Texas and Mr. Sclater chief production engineer of the Marland Oil Co. of Oklahoma.

Sees Great Oil Country in Colombia

Veteran Oil Man Believes It Can Produce as Much as Venezuela. Bolshevism Unsettling Labor Conditions

By M. A. Spellacy

BOGOTA, Colombia, Feb. 1.—The bright particular star in Colombia to date, is the Tropical Oil Co. This magnificent property at Barranca, Bermeja, is steadily developing and should be ranked with the greatest oil properties in the world. Were pipeline facilities at hand, this company today could put on the market a production equal to the entire output of Venezuela. There may never be another property in Colombia such as this, unless it is the Barco concession and that is only a surmise. There have been many cases where the only reliable geologist, the "drill-bar", has shattered the predictions of the theorists.

The Tropical has averaged for several years, 20 strings of tools, running and a lesser average for several years more. In all, there have not been more than three or four dry holes. Of the wells, 95 per cent are from 1,000 to 1,500 feet in depth, and these wells average 1,000 bbls. or better of oil, and about 26 degrees gravity. The deeper sands down to 4,000 feet are of greater caliber, generally from 5,000 to 18,000 bbls. There are only a small number of wells drilled to this depth and I cannot state the gravity of the oil, but one drilled to 5,000 feet was dry. Recently they jumped 20 kilometers (12½ miles) northeast from El Centro and Infantas, the two active operating camps. Two small wells, 200 bbls. each, of 37 gravity oil were struck at 1,100 feet. I have been informed, but cannot state positively, that they often find from 200 to 400 feet of sand.

Leonard-Gulf Well

The only other well in paying quantities which has been struck was that of the Leonard-Gulf Companies, southeast of Puerto Wilches, and about 30 miles north of the Tropical. It was small. About 350 bbls., but at a depth of 950 feet. But the oil is of light gravity, 37 degrees, and chances are good for further production, when drilled deeper, or from lower sands. There are two more wells started, but shut down for the present. In connection with this property I suspect our friend John Leonard was a little bit unlucky,—something new for John. John had a firm idea that the property, some 90,000 acres, would prove good, and set his price accordingly. None of the big fellows seemed to agree with him on his valuation, so he put in a year or two, completing a road to his location—finally putting up a rig and bringing in tools. They threshed away for about six months and were somewhere about 500 or 600 feet. The the Gulf company came to his terms, for a 51 per cent interest. A short run of real work brought in the well at 950 feet. If John's crew had only threshed away to that depth, it would have more than doubled the value of the acreage. To offset these two successes is a pretty long list of failures. The Standard of California, Jenks, (English) and the Gulf have drilled 10 or 12 dry holes between Puerto de Colombia, at the mouth of the Magdalena River, and the Sinn River district, trying to find oil "where it ain't," near tidewater. Surface indications and formations seem good, and not only geologists—but practical "oil men" have thought the chances for production very encouraging. Perhaps something further back from the coast may develop. The Transcontinental company also has had hard luck along the upper Magdalena from about 25 miles north of Girardot to Honda, where it has just completed its fifth dry one.

Other Active Tests

On the property of the Colombia Syndicate, (which has a number of dry holes to its credit, only one of which, however, can be considered as having reached a depth considered as a test, 3,300 feet, and where a small well was found, still flowing about 20 bbls. after standing several years,) a well is now drilling. This location and large acreage lying north of the Leonard-Gulf property and south of the Magdalena Oil Co.'s location looks extremely good for future production. Cosden and others are drilling a well on the lands of the defunct Grenada Oil Co., where one dry hole was drilled and another well started several years ago. They are using an old machine outfit with which the chances for a real test are very poor. It is a pity, as seepages, location and formation make chances favorable for success. These two tests, with the two started and shut down by the Leonard-Gulf companies are the only tests I know of now being made in Colombia. However, a very large acreage has been secured the past year, by many companies and promise of greater activity seems assured.

Colombia has not seen fit to encourage the development of its immense acreage of national lands as yet, and all drilling, aside from the Tropical concession, has been on lands of old title. Only a small acreage of national lands has yet been granted, to one company, given by the Ospina administration and held by a Colombian company. The laws governing these lands are yet impossible to operate under, but when Colombia desires development,—will undoubtedly be changed. For this reason, Venezuela has had largely a monopoly on oil development. A change is confidently expected under the new administration, of President Abadie Mendez, but the change will be slow, as that is the policy of Colombia. Also the Nicaragua affair and the strike at Barranca have for the present stopped all hope of favorable action in the near future, but that will pass, and Colombia will recognize the necessity of more favorable oil laws in its own interest. I have been over a very large part of the country and see no reason to change my opinion that ultimately, Colombia will equal and surpass Venezuela as an oil producer.

Bolshevist Activity

The labor trouble at Barranca (Tropical Oil Co.) was brought about by Bolshevist agitators, and was unsuccessful. It was very well handled by the company, and by the Government. The demands of the strikers were in some respects quite reasonable. A reduction of hours from 8½ to 8 and an increase of minimum wage from $1.60 to $2 per day, will undoubtedly—some time—be granted. But there was a lot of foolish demands for social equality with the American officials and employes, improvement in hospital attention, discharge of some "bosses" and other unreasonable terms, probably put in by the agitators to prevent acceptance of the more reasonable clauses. As a matter of fact, before the advent of the Tropical and other companies, it is doubtful if there was a workman outside the stevedores along the river, who unload and load cargoes, by piece work, who received as much as $1 per day, and the prevailing wage was from 40 to 50 centavos. Nor, probably is there any company which gives to its employes so good a sanitary arrangement and care for the injured as the Tropical. There are about 2,500 Colombian employes, which by reason of the agitators, calling on the "syndicate" workmen, at different times, was swelled to twice the number. Also, a great many of the employes refused to strike. The Government is building many railroads, automobile roads, etc., and the Tropical pointed out that a grant under duress of the increase in wages, and shorter hours, would be followed by equal demand by the laborers on all public works.

Red Flag Parades

Meanwhile, parades under the red flag were of daily occurrence. An American (I'll bet it was a driller) with more sand than sense, captured one of the flags and tore it to shreds. Immense indignation and volumes of oratory by the "reds." They held a big meeting at Barranca in honor of the memory of Lenin. They tried to make it appear as a fight against the foreign Yanqui who was grinding and exploiting Colombian labor, but the talk of the agitators was also against the Colombian Government and threats to "Mexicanize" Colombia showed the real motive. Then, incited by the orators they attacked the residence of the priest with rocks and machetes, shouting threats to kill him. The padre fled to the police for protection, who marched to disperse the mob. Some shots were fired by the mob which the police returned, killing two and wounding several. In the fight, five policemen were wounded. Nine workmen were drowned in the river, the particulars of which are not clear to me. The Syndicate workmen went on a sympathy strike. The entire length of the river, all products of the Tropical were boycotted and threats made to blow up the tanks with dynamite and burn the wells. A gasoline famine threatened Bogota and nearly all the country. The entire fleet of steamboats on the river was tied up and commerce paralyzed. Then the Government got busy. Troops and police were sent to all active points and the agitators arrested and placed in jail. There were threats of many that the steamers could load or unload "only over our dead bodies" by the syndicalists, but martial law was declared and at present writing things are almost normal, and cargoes are moving again.

Real Menace to Good Order

This Bolshevik propaganda is not, as I formerly thought, a myth. It is here in Colombia, as witness the meeting of the strikers in honor of the memory of Lenin and even stronger evidence of which I have learned recently, the cries of "Down with the Government," and the attack on the padre. In connection with this latter incident, the strikers had a picture of one of their dead, taken on the spot where he fell. The ridiculous feature, as shown in the Liberal papers, is that whilst killed for attempting to lynch the padre in the picture four burning candles are placed at the head and feet of the corpse. The Bolshevik propaganda has fruitful soil in South America. Yucatan was Bolshevik before the word was coined. There was seizure of sisal, and division of the lands amongst the peons and the "revision" of the marriage laws, permitting divorce if the wife overcooked the frijoles or either declaring they had ceased loving their mate,—were sufficient grounds for a decree. Mexico, Guatamala, are "advanced" states, whilst Chili and Argentina are reaching for the same end in a slower method. I have no doubt, President Coolidge has the evidence to prove an attempt by Mexico to spread its "gospel" in Nicaragua. There is a great gulf in all Central and South America, between the educated classes and the 80 per cent of "unwashed." Poor transportation facilities make the lower classes almost as beasts of burden; men, women, and children serving as "pack animals" for centuries, until they accepted their lot as a matter of course. The awakening has begun, with the increased activity and development in nearly all these countries. In a dumb, ignorant way, they only think of getting their

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Late News from the Fields

OKLAHOMA

The Roxana Petroleum Corp.'s No. 1 Harber, SE cor. SW SE, Section 22-9-6, Seminole County, was shot with 10 quarts from 4,010-20 feet, and responded with 1,312 bbls. in 24 hours.

Superior Oil Co.'s No. 1 Noble, SE cor. SW SW, Section 10-9-6, Seminole, is shut down with a hole full of water in the Wilcox sand found at 4,315 feet.

Pure Oil Co.'s No. 11 Strothers, NW cor. SW, Section 26-9-6, was shot with 17 quarts and increased from 1,400 to 3,500 bbls.

A detailed list of Seminole production on Saturday, February 19, follows:

	Bbls.
Amerada Petroleum Corp.:	
Fixico	7,321
Killingsworth	1,833
Rentie	5,122
	14,326
Atlantic Oil Producing Co.:	
N. Cudjo	4,100
J. Cudjo	875
	4,975
Carter Oil Co.:	
B. Carter	340
F. Carter	2,645
J. Carter	385
Cudjo	6,220
Grisso	7,620
G. Killingsworth	3,080
M. Killingsworth	2,692
Knappenberger	925
Lukes	4,970
Strothers	4,880
	33,757
Empire Gas & Fuel Co.:	
Wilson	925
Gypsy Oil Co.:	
Butler	1,200
Carter	3,664
Fixico	277
Harjo	1,620
Wolfe	9,761
	16,522
Independent and others:	
T. Fixico	4,493
P. Fixico	380
Jones	6,111
	10,984
Indian Territory Illuminating Oil Co.:	
Bowlegs	8,907
Goodin	697
Harjo	1,815
James	2,370
Reed	47
	13,836
Kingwood and others:	
Harjo	54
Magnolia Petroleum Co.:	
Franks	2,378
Mid-Continent Petroleum Corp.:	
Tayeche	3,500
Rentie	2,370
	5,870
Mid-Kansas Oil & Gas Co.:	
Wilkins	256
Philmack Oil Co. and McCulloch Oil Co.:	
Butler	3,335
Prairie Oil & Gas Co.:	
Gross	240
Spencer	45
Strothers	10,775
	11,060
Roxana Petroleum Corp.:	
Lasley	115
Harber	1,297
	1,412

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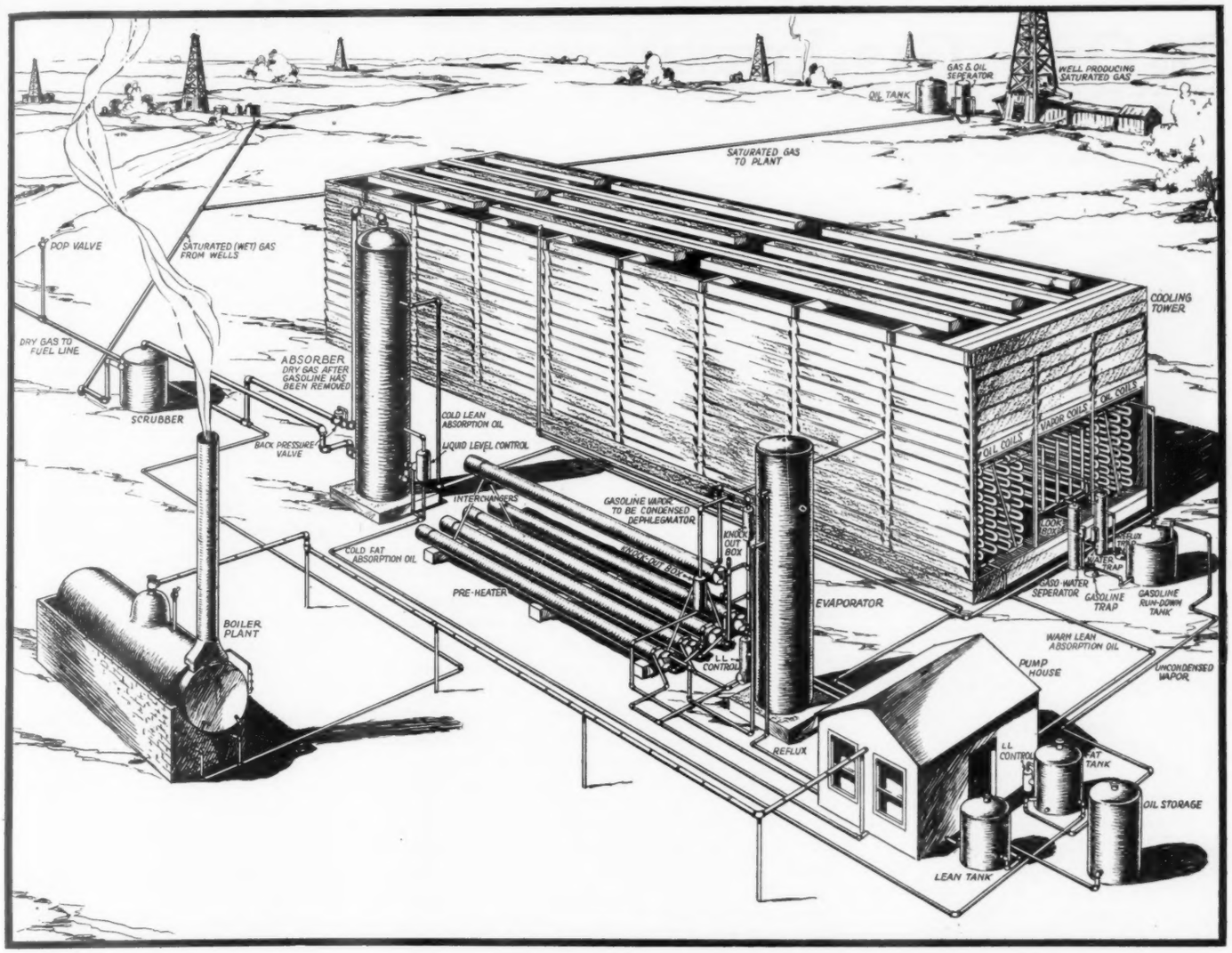

This Picture Tells the Story of the

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THE OPINION OF EXPERTS

The conservation of gas in oil-producing sands, now a general topic of discussion among oil men, was originated by the engineering profession. It is, therefore, of timely interest to note the opinion of the engineers of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, in their sessions at New York, upon the proposal to have state legislatures act upon this question.

The opinion was so general, as to be almost unanimous, that the present state of engineering knowledge upon the subject is not sufficient to warrant the profession undertaking to advise state legislatures on appropriate enactments, if any are needed, and that the greatest danger lies in hasty and ill-advised legislation.

If laws are found to be necessary it was felt that they should be general in scope, leaving actual application in specific instances to expert professional judgment.

The impossibility of framing hard and fast regulations at this stage of engineering knowledge was repeatedly emphasized.

Yet the legislature of Oklahoma has been asked to rush through a measure, specifying, with the utmost detail, just how and when the oil producers of the state may act in this matter.

The contrast between this attempt to stampede the legislature into instant action and the warning against haste coming from the men who are primarily responsible for the conception of gas conservation is surely instructive.

The legislators and the public, without definite knowledge of this highly technical subject, must assume that the engineering profession which worked out the theory of gas conservation ought to be best qualified to say whether legislation to put the theory into practice is needed now, or at all.

Ordinarily, men who evolve a theory of any kind who think a law is needed are impatient to get the proposed legislation rushed through. But the engineers are taught by the practice of their profession to think things out first and they know the peril of jumping to conclusions without being certain of their premises.

They realize, as the general public and the legislators may not, that it is entirely possible, through the enactment of badly conceived laws, to wreck their whole program. Hence their caution against haste.

Moreover, knowing the difficulties of the problem they have proposed, they do not underestimate what has yet to be done.

This whole question of oil-gas ratio, which the bill presented at Oklahoma City proposes to settle offhand by legislative enactment, the engineers know better than anyone else cannot be settled that way.

A very great deal of additional research and the compilation of additional records will have to be done before the engineering profession will feel free to claim sufficiently definite knowledge to justify the drafting of legislation to regulate the subject.

This, it must be remembered, is the view of the engineers themselves, and it is not to be brushed aside by declarations that some sort of law must be passed immediately.

The engineers admit that opinions upon certain phases and possible results are as varied as the experiences of those who have studied the problem.

There is a very general endorsement of the theory, but a very wide divergence of opinion as to how it shall be applied, and as to what effects might be expected.

These doubts can be resolved only by further research and the establishment by actual practice of certain records and these things are not to be accomplished as simply as presenting a bill in the legislature.

In this matter of oil-gas ratio, or of back pressure, research tests may establish a general theory but application to the widely different conditions in the various oil fields, or even in the same field, cannot be calculated short of actual experiment.

There is also to be considered, as one of the engineers said, the important point that what is desired is the economic oil-gas ratio, the ratio which will mean the maximum ultimate profit to the producer in any one case.

Ratios which are not economic must in the end defeat themselves. They must be workable commercially. Premature legislation could easily nullify the whole theory by establishing a ratio that would be uneconomic.

That is what the engineers probably had in mind when they urged extreme caution and deliberation.

The speakers of the Petroleum Division of the A. I. M. E., professionally responsible for the gas conservation theory, cannot be accused of ignorant opposition or of ulterior purpose in taking this stand against hasty legislation.

Their opinions must carry the weight of authority and be a deciding factor against further insistence upon immediate action by legislative enactment.

The oil industry is proceeding in this matter with the same caution it has shown in adopting other innovations in the producing and manufacturing branches.

It studies all theories and submits them to the test of practical experiment before adopting them. Individuals usually pioneer these experiments but when they prove successful there is no time lost in general adoption.

The whole situation is a reminder once more of the need for some such instrument as the proposed National Institute of Petroleum Research to further such studies. The discussion before the Petroleum Division of the A. I. M. E., reported in this issue of The Oil and Gas Journal, shows the value of technological cooperation.

The additional research and records needed will take time but in the end will save time that might be lost in false steps such as premature legislation.

If the industry is not hustled into the wrong path there is no question of it ultimately solving its own problems in its own way to the advantage of all. Let it not be forgotten that it has done more actual conservation of oil and gas than all the laws on the statute books. The natural gasoline industry and the continual increase in recovery of gasoline from crude prove that beyond question. If gas conservation is as beneficial as believed, no law will be needed to compel the industry to adopt it when a workable method is demonstrated.

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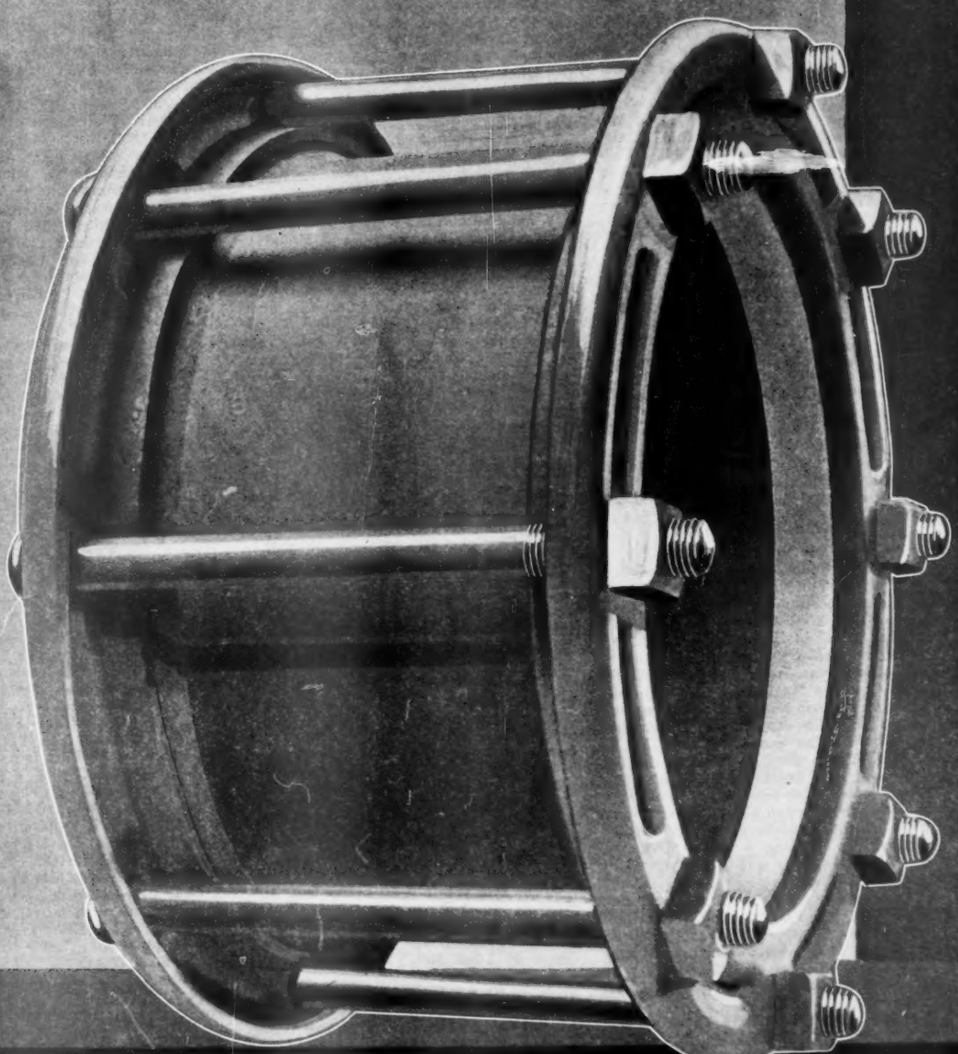


DRESSER COUPLINGS DOMINATE

Crane, Pecos and Upton Boost Output

Second Largest Well Ever Drilled in West Texas. Pecos Producer Flowing 3,300 Barrels. New Eastland Pool

By C. D. Lockwood
Staff Correspondent, North and West Texas

FORT WORTH, Tex., Feb. 21.—As a direct result of the sensational producers in Crane, Pecos and Upton Counties last week, West Texas production soared to new heights and the grand total for the district was 88,700 bbls. The Wichita Falls district remained practically stationary with 99,945 bbls., and the Ranger district also showed little change, having 67,795 bbls. The result was a 19,200-bbl. increase in production in North and West Texas.

The reasons for this are apparent when the records of some of the new producers are reviewed. Simms Oil Co. and Atlantic Oil Producing Co.'s No. 2-A University, in the SE cor. of Section 39, Block 30, University Land, Crane County, which is the second largest well ever drilled in West Texas, flowed 6,260 bbls. February 17 and flowed 7,146 bbls. during the 24 hours ended Sunday morning. There is no water in evidence, which is all the more remarkable in view of the fact that pay was topped at 2,889 feet and drilled to 2,953 feet. The Humble Pipe Line was running 200 bbls. per hour from this lease at latest reports, relieving some of the trouble due to open storage.

The Eastland Oil Co. & Collett's No. 1 University, a diagonal southeast offset to the big well, was still holding up around 1,800 bbls. daily this week, although drilled only 15 feet in pay topped at 2,890 feet. The Simms & Atlantic well, by the way, is making its 7,000 bbls. or more with the tools in the hole.

Pecos County Pool

The next most interesting and important spot in West Texas is the eastern edge of Pecos County, along the Pecos River, which divides Pecos and Crockett Counties. Like the Crane County well, the Mid-Kansas Oil & Gas Co. and Transcontinental Oil Co.'s No. 2 Yates, in the vacant strip west of Section 60, Block 1, has so far failed to behave itself like a flash in the pan, continuing to do its best toward filling the 55,000-bbl. storage tank on the lease in the shortest possible time. At the rate it has been going the past week that tank will be full in about 15 days, more or less, allowing for natural decline. It flowed 3,378 bbls. February 14, 3,278 bbls. the next day, 3,325 bbls. on the sixteenth and 3,701 on the seventeenth. All of this from sand at 999-1,002 feet.

Kemper Kimberlin sold out his half interest in the well located about 3 miles southeast of the big gusher and which was known as Kimberlin & Pickrell's No. 1 Yates, near the center of Section 55, Block 1, I. & G. N. Survey. The half interest in the well and 640 acres brought $60,000 in cash, two $50,000 notes for one and two years, respectively, and $160,000 out of half the first oil produced. The purchaser was the Texon Oil & Land Co., owner of the other half interest.

This Pecos County Pool of the Mid-Kansas and Transcontinental companies has caused a brisk scramble for acreage all the way from Sheffield to the southern edge of production in Upton County. The Pecos County discovery is almost exactly in line with the southeast trend of production as defined by the Church & Fields Pool, the Gulf-McElroy Pool, the Dixie-Hughes, the Sanger and Burleson areas of Crane and Upton Counties. The Yates wells are considerably east of the Upton County production, as well as south, and this throws them in the popular southeast-northwest trend. All of the area between the Yates and Burleson districts, as well as southeast of the Yates in Pecos and Crockett Counties, will receive redoubled attention.

A refining analysis of crude from the discovery well, No. 1 Yates, showed the gravity to be 28.9 degrees A.P.I., and the sulphur content 2.27 per cent. The Humble Pipe Line Co. is laying an 8-inch line to the pool from McCamey, and the Mid-Kansas Oil & Gas Co. is erecting another 55,000-bbl. tank.

Burleson-Lane Acreage

Another area which boosted the West Texas production figures during the past week was the Burleson and Lane acreage on the southeast edge of the chain of Upton County Pools. Texas Pacific Coal & Oil Co.'s No.1 Lane-A, in Section 5, G. C. & S. F. Survey, was deepened 18 feet February 16 to 2,021 feet, and the result was 2,555 bbls. February 17, 2,460 bbls. the next day and 2,465 bbls. February 19. Last Saturday this well had passed 50,000 bbls. in total production. Prairie Oil & Gas Co.'s No. 1 Lane, in the SW cor. of the same section, flowed 1.245 bbls. February 17, and No. 2 Lane, west offset to Texas Pacific's No. 1-A, flowed 1,550 bbls. at 2,020-26 feet. Dixie Oil Co.'s No. 17 Burleson, south offset to Prairie's No. 1 Lane, also flowed 2,000 bbls. at 2,057-80 feet.

The Powell area, between the Burleson-Sanger and the Hughes districts, seems to have a future since The Texas Company's No. 20 King, north offset to Marland's No. 1 Powell, flowed 510 bbls. in 14 hours at 2,534 feet. This well is in the SW cor. of Section 1, Block 3½.

In Pecos County, Dixie Oil Co. had a good show of oil at 338 feet in its core test located 500 feet each way from the SE cor. of Section 539, Block A-3, Arnold & Barrett Survey.

Eastland County Prospect

Eastland County has prospects for a good pool around the Duffer well of Gholson and Chestnut & Smith, south of Ranger. J. M. Gholson's No. 3 Duffer, in the S. N. Mathias Survey, was reported flowing steadily Monday at noon. Top of pay was found at 3,470 feet and total depth is 3,482 feet. It made 35 bbls. in one hour and locations have been staked for wells east of No. 1 and west of No. 3. The same interests' No. 2 Duffer made a flow of 20 bbls. Sunday afternoon and another of 25 bbls. two hours later. Total depth is 3,484 feet. The Gulf Production Co. has a couple of wells which should be in shortly. No. 1 Duffer was building a standard rig at 2,240 feet Saturday and No. 2 was drilling at 3,058 feet.

Cooke County was in the limelight this week as a result of the first gas well in the county. This is Magnolia Petroleum Co.'s No. 1 Johnson, which had 3,000,000 feet of dry gas at 1,178-98 feet and may be turned into a commercial gas well.

NORTH CENTRAL TEXAS COMPLETIONS

Archer County

Continental Oil Co. and Maer & Staniforth's No. 1 Wilson was dry and abandoned at 1,603 feet. Dixie Oil Co.'s No. 1 Wilson was also a failure at 1,601 feet and so was Gohlke and others' No. 2 Wilson at 1,590 feet and Gwynn and others' No. 1 Turbeville at 1,521 feet.

Harris and associate's No. 1 Farmer swabbed 75 bbls. the first 8 hours from sand at 1,460-62 feet. Magnolia Petroleum Co.'s No. 10 Hudson made 21 bbls. at 1,169-77 feet; No. 31 Lowe swabbed 41 bbls. in 12 hours at 1,284-91 feet. Marland Oil Co. and Consolidated Oil Co.'s No. 2 Ward made 60 bbls. of oil and 4 bbls. of water the first 12 hours at 1,018-23 feet. Pandem Oil Corp.'s No. 12 Thomas made 20 bbls. at 1,158-62 feet. Payne and others' No. 3 Parrish was good for 35 bbls. at 1,570-78 feet. Petroleum Producers Co.'s No. 2 Turbeville-C was dry and abandoned at 1,487 feet. Plains Production Co.'s No. 1 Lyles swabbed 16 bbls. an hour from sand at 1,544-52 feet. Rowe and others' No. 3 Jentsch made 12 bbls. from oil sand at 1,175-79 feet, total depth 1,195 feet.

Roxana Petroleum Corp.'s No. 15 Abercrombie & Taylor-A made 60 bbls. from sandy lime at 1,335-39 feet and sand at 1,339-65 feet. Simms Oil Co. & Burns' No. 6 Turbeville-A made 75 bbls. from broken sand at 1,451-72 feet; No. 7 Turbeville-A made 10 bbls. at 1,486-1,502 feet. Steadham & Thrasher's No. 1 Starr was dry and abandoned at 1,905 feet.

The Texas Company's No. 1 Garvey was a failure and plugged at 1,366 feet. Underwood Drilling Co.'s No. 2 Ward made 150 bbls. at 1,012-16 feet.

Brown County

Amerada Petroleum Corp.'s No. 19 Fry made 20 bbls. an hour at 1,295-1,303 feet. Anderson & Shults' No. 1 Hodnett was dry and abandoned at 1,215 feet. Anna Belle Oil Co.'s No. 2 Armstrong had sand at 1,175-1,208 feet, and was shot with 20 quarts at 1,171-90 feet, and made 30 bbls. Barbara Oil Co.'s No. 2 Willis found sand at 1,350-55 feet, and made 25 bbls. Bevens' No. 1 Weedon was dry and abandoned at 1,807 feet. Brown's No. 1 Weedon was also dry and abandoned at 2,630 feet. Charter Oil Co.'s No. 4 Andrews was plugged back from 1,330 feet to pay at 1,323-28 feet, and made 25 bbls.

Curry and others' No. 2 J. P. Newton is flowing 30 bbls. at 1,255½-80 feet, and will be shot; No. 3 was flowing 100 bbls. after a 20-quart shot at 1,257-84 feet, and will shoot again. Humble Oil & Refining Co.'s No. 7 Armstrong was sand at 1,193-1,215 feet, and swabbed 125 bbls.; No. 8 Foster was sand at 1,173-95 feet, and made 20 bbls. after a 20-quart shot at 1,177-95 feet; No. 10 was dry and abandoned at 1,206 feet; No. 10 Hickman had sand at 1,226-60 feet, and was shot with 15 quarts at 1,234-56 feet, and made 72 bbls; No. 12 Hodnett had sand at 1,190-1,202 feet, and was plugged back from 1,250 feet to 1,202 feet, and was a small show of oil after a 40-quart shot at 1,192-1,202 feet; No. 6-B found sand at 1,185-1,204 feet, and made 100 bbls. after a 10-quart shot at 1,194-1,204 feet, total depth 1,215 feet; No. 11 D. C. Wooldridge was dry and abandoned at 1,310 feet.

McCulloch and others' No. 1 J. W. Newton was a failure at 1,795 feet. McKenna's No. 4 Shore was dry and abandoned at 1,388 feet. McLester Oil Co.'s No. 13 J. Wooldridge was dry and abandoned at 1,325 feet. Midwest Exploration Co.'s No. 19 Suttles made 20 bbls. after a 40-quart shot at 1,152-64 feet, total depth 1,170 feet. Pandem Oil Corp.'s No. 10 Westerman made 20 bbls. from sand at 1,265-80 feet after a 40-quart shot, total depth 1,290 feet. Quinn and others' No. 1 Pugh made 30 bbls. at 1,316-21 feet after it was plugged back from 1,335 feet to 1,333 feet. Ramsey's No. 1 Henson made 30 bbls. from sand after a 20-quart shot, total depth 1,275 feet. Ratblott's No. 1 Jones was dry and abandoned at 1,660 feet after a 60-quart shot at 1,616-57 feet.

Rex-Pyramid Oil Co.'s No. 6 Fry was a failure at 2,025 feet. Roxana Petroleum Corp.'s No. 3 J. P. Newton had sand at 1,248-72 feet, and made 144 bbls. after a 20-quart shot at 1,251-70 feet. Sinclair Oil & Gas Co.'s No. 4 J. H. Fry made 1,138 bbls. at 1,270-84 feet, total depth 1,290 feet; No. 6 made 842 bbls. at 1,270-91 feet; No. 8 made 622 bbls. at 1,274-1,300 feet, total depth 1,301 feet. The Texas Company's No. 15 Hickman had sands at 1,170-73 feet and 1,180-92 feet. It made 15 bbls. No. 15 Lowe was flowing at the rate of 12 bbls. per hour at 1,274-95 feet; No. 24 Lowe pumped 25 bbls. at 1,269-73 feet; No. 26 location was abandoned; No. 7 Pugh made 50 bbls. at 1,339-60 feet; No. 8 made 25 bbls. at 1,327-48 feet, and was plugged back from 1,348 feet to 1,346 feet. Wentz Oil Corp.'s No. 5 Shore made 200 bbls. at 1,307-25 feet.

Advance Oil Co.'s No. 1 Whitted was a failure at 1,575 feet. Anderson and others' No. 1 Thomason was dry and abandoned at 1,564 feet. Fabor & Warren's No. 1 Whitley had sand at 1,282-1,317 feet, and was plugged back from 1,392 feet to 1,317 feet. It had a small show of oil after an 80-quart shot at 1,282-1,317 feet. Milham Corp.'s No. 1 Schafner was plugged and abandoned at 1,673 feet after a 100-quart shot at 1,171-1,223 feet. Roeser & Pendleton's No. 1 Bourn was a failure at 1,252 feet. Sawyer and others' No. 1 Walker was dry and abandoned at 1,430 feet.

Callahan County

Gibson & Johnson's No. 1 Boydston was a failure at 2,602 feet. State Oil Corp.'s No. 1 Weeks was dry and abandoned at 715 feet.

Coleman County

Burke-Greis Oil Co. and others' No. 1-A Dibrell was dry and abandoned at 2,182 feet. Moore & Fluhrman's No. 1 Andrews had a show of oil at 1,890-1,910 feet, and was drilling 1,940 feet, top Caddo 1,805 feet. Sebastian's No. 1 Chesley and others was shot with 20 quarts at 1,946-66 feet, but got no results; top Caddo 1,835 feet. Van Eman and others' No. 1 Wells was dry and abandoned at 1,625 feet.

Cooke County

Camp & Heydrick and Oil Operators Trust Co.'s No. 1 Kleiss was completed for 144 bbls. at 1,299-1,309 feet, with broken oil sand to 1,317 feet. Magnolia Petroleum Co.'s No. 1 Johnson had 3,000,000 feet of dry gas in sand at 1,179-97 feet, and drilled another foot of shale. Oil Operators Trust Co.'s No. 2 Luke was temporarily abandoned at 1,616 feet. Stroube & Stroube's No. 1 Koelser had broken sand from 1,272-1,306 feet, and shale at 1,306-24 feet. It was estimated good for 25 bbls.

Eastland County

The Texas Company's No. 11 Hightower pumped 75 bbls. at 1,182-98 feet. Root and others' No. 1 Ray was dry and abandoned at 3,785 feet.

Clay County

Lone Star Gas Co.'s No. 25 Holloway was plugged as a duster at 1,760 feet. Same concern's No. 31 Waggoner was also a failure at 1,885 feet. Stump & Co.'s No. 1 Waggoner had sand at 1,298-1,302 feet, lime at 1,302-06 feet, and sand at 1,306-10 feet, making 8 bbls.; No. 2 was dry and plugged at 1,306 feet.

Montague County

Alexander & Lyles' No. 1 Yarborough estate was abandoned as dry at 3,506 feet. The location for Camp Oil & Gas Co.'s No. 1 Russell was abandoned. Barnsdall Oil Co.'s No. 3 Howard made 30 bbls. from sand at 1,359-64 feet and broken sand at 1,364-88 feet.

Continental Oil Co.'s No. 16 Howard-A flowed 41 bbls. in 18 hours from sand at 1,375-78 feet and broken sand 1,378-1,405 feet; No. 17 Howard-A made 56 bbls. at 1,402-05 feet; No. 7 Howard-B was good for 24 bbls. at 1,354-88 feet; No. 13 Maddox-A pumped 48 bbls. at 880-99 feet; No. 14 Maddox-A pumped 26 bbls. at 911-33 feet, total depth 941 feet; No. 15 Maddox-A made 58 bbls. at 898-919 feet; No. 11 Rowland was good for 22 bbls. from sand at 1,066 to 1,160

feet: No. 1 Salmon-A was dry and plugged at 1,223 feet.

F. H. E. Oil Co.'s No. 3 Howard-C pumped 25 bbls. at 1,128-50 feet. Farmers Creek Oil & Gas Co.'s No. 1 Flint was dry and abandoned at 2,505 feet.

Shackelford County

Amerada Petroleum Corp.'s No. 2 Davis was dry and plugged at 2,360 feet. Carter Development Co.'s No. 1 Nail was a dry hole at 2,049 feet; No. 7 Nail was also plugged and abandoned at 2,015 feet. Hope Petroleum Co.'s No. 6 Davis made 70 bbls. at 1,431-36 feet. The location for same company's No. 10 Davis was abandoned.

Humble Oil & Refining Co.'s No. 18 Cook made 15 bbls. from sand at 1,135-48 feet after plugging back from 1,363 to 1,153 feet. Hyde & James' No. 6 Moberly was good for 100 bbls. at 1,160-71 feet. Independent Oil & Gas Co.'s No. 3 Davis was plugged back from 1,510 feet to sand at 1,468-72 feet, where it pumped 20 bbls.

Magnolia Petroleum Co.'s No. 3 Moberly was a dry hole at 1,310 feet. Phillips Petroleum Co.'s No. 3 Brooks topped the lime at 3,500 feet, and was flowing 380 bbls. of oil with 4,000,000 feet of gas. It will be deepened. Ramsey & Maxey's No. 1 Manley was a failure at 2,250 feet.

Roeser & Pendleton and Marland Oil Co.'s No. 34 Cook A-60 pumped 35 bbls. at 1,149-60 feet; No. 35 A-60 pumped 50 bbls. at 1,137-52 feet; No. 10 C-60 pumped 35 bbls. at 1,137-50 feet; No. 15 C-60 pumped 30 bbls. at 1,141-56 feet; No. 26 A-85 pumped 40 bbls. at 1,325-42 feet.

Rose and others' No. 1 Moberly pumped 25 bbls. at 1,395-1,408 feet; No. 2 Moberly was estimated good for 40 bbls. at 1,167-71 feet, total depth 1,277 feet. The location for No. 3 Moberly was abandoned. Tannehill Oil Co.'s No. 9 Moberly pumped 40 bbls. from sand at 1,188-95 feet after plugging back 1 foot. Wallace's No. 1 Waters encountered gas sand at 1,926-92 feet, making 4,000,000 feet of gas, and was running the 5-inch to total depth of 2,011 feet.

Stephens County

Texas Consolidated Oil Co.'s No. 8 Martin was plugged back from 4,601 feet to 3,390 feet, and shot with 450 quarts at 3,270-3,390 feet, making a 100-bbl. well. Christie Brothers' No. 3 Gardenshire was dry and plugged at 2,180 feet. Denny & Andrews' No. 1 Andrews was a 20-bbl. producer with 1,250,000 feet of gas at 1,980-2,021 feet. Morton and others' No. 1 Fambrough had 1,500,000 feet of gas at 1,785-1,895 feet, and was shut down for orders at 1,907 feet. Texas Fidelity Oil Co.'s No. 7 Pratt was completed for 2,000,000 feet of gas at 1,926-2,110 feet, total depth 2,220 feet. Texas Pacific Coal & Oil Co.'s No. 69 Binney was a 62-bbl. pumper following a 40-quart shot at 1,873-95 feet, total depth 1,902 feet.

Throckmorton County

Hoffer Oil Corp.'s No. 2 Mathews was dry and plugged at 1,570 feet. Consolidated Oil Co., Larkin & White's No. 2 Conger was dry and plugged at 1,666 feet. Humble Oil & Refining Co.'s No. 3 Stubblefield was swabbing 35 bbls. from gray lime at 3,871-91 feet, total depth 4,080 feet. Magnolia Petroleum Co.'s No. 1 Graham had 2,000 feet of oil in the hole from lime at 3,195-3,211 feet and was running perforated casing with packer.

Wichita County

Martin and others' No. 1 Rhodes and others was dry and abandoned at 1,283 feet. R. R. Clark and others' No. 12 Ward & Todd pumped 40 bbls. at 1,894-1,900 feet. Continental Oil Co. and Petroleum Producers Co.'s No. 1 Love was dry and plugged at 1,824 feet. Culbertson Co.'s No. 50 Waggoner pumped 25 bbls. from sand at 1,418-36 feet. Dale Oil Corp.'s No. 20 Burnett pumped 35 bbls. at 1,364-72 feet.

Magnolia Petroleum Co.'s No. 8 Heiserman pumped 5 bbls. at 1,658-69 feet. W. M. Moore's No. 2 Burnett pumped 18 bbls. at 1,603-12 feet. Panhandle Refining Co.'s No. 6 Riley-Griffin was dry and abandoned at 1,827 feet. Petroleum Producers Co.'s No. 1 Ferguson was a duster at 1,850 feet. Staley, Wynne and others' No. 2 Griffin pumped 75 bbls. at 1,787-1,804 feet.

Wilbarger County

J. Barnes' No. 1 Ancell was estimated good for 40 bbls. at 1,726-28 feet. Humble Oil & Refining Co.'s No. 12 Waggoner-H pumped 60 bbls. at 2,370-2,401 feet, total depth 2,418 feet; No. 18 Waggoner-H pumped 30 bbls. at 2,419-27 feet, total depth 2,429 feet; No. 9 Waggoner-N pumped 32 bbls. from sand at 1,914-26 feet.

Phillips Petroleum Co.'s No. 6 Waggoner-T swabbed 200 bbls. at 1,875-78 feet; No. 18 Waggoner-QQ pumped 115 bbls. at 2,375-94 feet; No. 5 Waggoner-WW flowed 150 bbls. from sand at 2,378-2,402 feet, total depth 2,404 feet.

Young County

Tidal Oil Co.'s No. 11 Benson was a failure at 930 feet. Hull and others' No. 1 Stewart was a failure at 858 feet. Pitzer & West's No. 2 Boozer flowed 250 bbls., at latest reports, from lime at 3,900-06 feet, which was considerable of an increase. Same company's No. 2 Morrison Co. flowed 50 bbls. at 2,243-44 feet. Ramsey and others' No. 2 Payne and others flowed 30 bbls. at 2,081-2,121 feet.

WEST TEXAS COMPLETIONS

Crane County

Independent Oil & Gas Co.'s No. 73 Taylor, in the Sapp Survey, 660 feet south of No. 3, flowed 250 bbls. of oil and no water by heads in 12 hours at total depth of 2,040 feet. It had a show of gas at 2,002 feet, and the first show of oil at 2,025 feet. It started flowing at 2,027 feet.

In the Church & Fields Pool, Magnolia Petroleum Co.'s No. 3 O'Keefe, NE cor. NW NW Section 38, Block 30, drilled more pay to 2,976 feet, and increased to 757 bbls.

Marland Oil Co.'s No. 2-A Cowden pumped 10 bbls. at 2,360-85 feet; No. 3-D Hughes pumped 120 bbls. at 2,300-71 feet. The Texas Company's No. 13 King swabbed 25 bbls. at 2,319-70 feet, and was still drilling; No. 18 King topped the pay at 2,330 feet, and was shot with 130 quarts from 2,318-63 feet, total depth 2,372 feet. It swabbed 82 bbls., but increased to 105 bbls., no water, on the pump.

Howard County

Magnolia Petroleum Co.'s No. 1 Sarah Hyman was shot with 60 quarts at 1,602-23 feet, total depth 1,631 feet, and swabbed an average of 30 bbls. for a week. Marland Oil Co.'s No. 2-A Chalk made 43 bbls. initial after a 20-quart shot in sand at 1,592-1,608 feet.

Mitchell County

California Co.'s No. 3 Petitfils, Lease 1, topped pay at 2,950 feet, and was drilled to 3,080 feet. A shot of 280 quarts at 2,925-3,035 feet made it a 150-bbls. swabber. Magnolia Petroleum Co.'s No. 7 C. M. Adams swabbed 30 bbls. February 16 from pay at 2,912-3,040 feet.

Reagan County

Big Lake Oil Co.'s No. 80 University flowed 800 bbls. of oil and 470 bbls. of water at 2,868-79 feet; No. 88 made 150 bbls. at 2,872-2,934 feet; No. 93 University was good for 180 bbls. at 2,903-25 feet; No. 104 made 131 bbls. at 2,959-92 feet; No. 106 made 80 bbls. at 2,990-3,103 feet.

Camp and others' No. 1 University was dry and abandoned at 3,030 feet. Moody Oil Corp.'s No. 1 Sawyer was plugging to abandon at 3,030 feet, total depth.

Upton County

Dixie Oil Co.'s No. 16 Burleson pumped 200 bbls. at 2,045-2,150 feet; No. 17 flowed 2,000 bbls. at 2,057-80 feet. Humble Oil & Refining Co.'s No. 2 Ricker had a show of oil and gas at 1,971 feet, and topped the pay at 2,160 feet. Its first flow came at 2,180 feet, and it made 180 bbls., no water, at 2,220 feet. Marland Oil Co.'s No. 1-A Baker swabbed 50 bbls. in 12 hours after a 135-quart shot at 2,253-82 feet. It swabbed 90 bbls. from 2,253-86 feet before the shot; No. 4 Powell pumped 140 bbls., no water, from pay at 2,462-65 feet.

Prairie Oil & Gas Co.'s No. 1 Lane flowed 1,970 bbls. from pay at 1,985-2,080 feet February 5, and was still flowing 1,285 bbls. on the 17th; No. 2 flowed 1,550 bbls. February 16 at 2,020-26 feet. Roxana Petroleum Corp.'s No. 6 Della Bowen swabbed 748 bbls. of oil and 9 bbls. of water February 17; No. 17 Della Bowen swabbed 206 bbls. at 2,201 feet, and was running tubing; No. 10 Hughes flowed 75 bbls., no water, at 2,174-2,205 feet.

WEST TEXAS WILDCATS

Week Ending February 19, 1927

Company, Farm and Location—	Remarks—
ANDREWS COUNTY	
Calvin & Belt's No. 1 Ratliff & Bedford, C NE Sec. 16, Blk. A-54	Location.
J. S. Cowden's No. 1 Ratliff & Bedford, C SE Sec. 8, Blk. 73, Public School Land	Location.
Deep Rock Oil Co.'s No. 1 W. J. Harris, C SE Sec. 12, Blk. A-46, Public School Land	Location.
Neff et al's No. 1 J. S. Means, C SE Sec. 12, Blk. A-35, Public School Land	Location.
A. G. Carter & Zweifel's No. 1 Cowden, C SE, Sec. 18, Blk A-52, Public School Land Sur.	Shut down 650 ft.; 12-in. froze.
Maer & Staniforth's No. 1 W. B. Taylor, C SE Sec. 15, Blk. A-42, Public School Land Sur.	Spudding.
BORDEN COUNTY	
Julian Pet. and R. W. Penn's No. 1 A. J. Long, 660 ft. from N and E lines Sec. 10, Blk. 30, Tp. 4-N.	**Slight show gas 1,445-50 ft.; hole full salt water 2,295-97 ft.; hole full sulphur water 3,225 ft.; slight show oil 3,503 ft.; shut down 3,538 ft.**
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 M. Siemons, SW cor. Sec. 78, Blk. M-7, B. S. & F. Sur.	Rig on ground.
Gulf Prod. Co.'s No. 1 Clements, SW cor. Sec. 27, Blk. M-10-A, Sealy & Morris Sur.	Underreaming 10-in.; total depth 1,270 ft.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE Sec. 333, Blk. M-6, S. K. & K. Sur.	Spudded and shut down.
COCHRAN COUNTY	
J. C. Whicker's No. 1 G. C. Landor, 300 ft. N and 5,800 ft. E SW cor. League 154 Sherman Co. Sch. Ld.	Cleaning out 1,470 ft.
COKE COUNTY	
Lipan Oil Co.'s No. 1 E. C. Rawlings, CNL Sec. 390, Blk. 1-A, H. & T. C. Survey.	**Shut down for fuel oil 2,736 ft.**
CONCHO COUNTY	
Harry Adams et al's No. 1 Price, C SW Sec. 78, Blk. 71, Alex Gregg Sur.	Location.
Associated Pet. Co.'s No. 1 Sam Waring, SW cor. Jacob Getthardt Sur. No. 2,035	Fishing bit 2,300 ft.
Arkansas Fuel Co.'s No. 1 Hartgrove, SW cor. NW Sec. 49, Blk. 70, H. & T. C. Sur.	1,000,000 ft. gas 1,100-10 ft.; 4,500,000 ft. gas 1,142-47 ft.; fishing 1,440 ft.
The Exploration Co.'s No. 1 Hartgrove, Blk. 240, J. Schouch Sur.	**Shut down 1,675 ft.**
Gene Mays and others' No. 1 Hartgrove, NW SW Sec. 312, Mrs. A. Schmidt Sur., A-1173	Set 10-in. 1,200 ft.; drilling 1,478 Drilling 1,120 ft.
Marland Oil Co. & Taylor's No. 1 Sansom, C. NW NW Sec. 138, Blk. 72, T. & N. O. Sur.	Drilling 2,675 ft.
Swoveland & Lewis' No. 1 Plants & Bacon, C E ½ Sec. 8, G. C. & S. F. Sur.	Location.
CRANE COUNTY	
Church et al's No. 1 University, SE SW Sec. 34, Blk. 30	Drilling 2,675 ft.
Cromwell & Janes' No. 1 University, NW cor. SW Sec. 47, Blk. 30	Building rig.
Duffy et al's No. 1 W. H. Cowden Co., Sec. 8, Blk. X.	Top salt 1,035 ft.; drilling 2,950 ft.
Gulf Prod. Co.'s No. 5 Crier-McElroy, C NW NE Sec. 204, Blk. F.	Top lime 2,695 ft.; total depth 2,715 ft.; run 6-in.
Gulf Prod. Co.'s No. 8 Crier-McElroy-A, C NE NW Sec. 198, Blk. F	Fishing for tools 445 ft.
Gulf Prod. Co.'s No. 6 J. T. McElroy, C SW SE Sec. 197, Blk. F	To case off bit; total depth 1,277 ft.
Gulf Prod. Co.'s No. 7 J. T. McElroy, C NW SW Sec. 199, Blk. F	Drilling 2,005 ft.
Humble O. & R. Co.'s No. 1 University, NW SW Sec. 39, Blk. 30, University Land	Drilling 760 ft.
Independent O. & G. Co.'s No. 7 Taylor, H. T. Sapp Sur., NE cor.	Drilling 3,500 ft.
Independent O. & G. Co.'s No. 8 Taylor, H. T. Sapp Sur.	Total depth 2,417 ft.; plugging back.
Independent O. & G. Co.'s No. 13 Taylor, H. T. Sapp Sur.	Drilling 1,440 ft.
Independent O. & G. Co.'s No. 71 Taylor, H. T. Sapp Sur. (8 of No. 4)	Top salt 430 ft.; show oil 2,056-60 ft.; drilling 2,075 ft.
Independent O. & G. Co.s No. 73 Taylor, H. T. Sapp Sur. (8 of No. 3)	Flowing by heads 250 bbls. 12 hrs. 2,040 ft.; to shoot.
McCaney & Zoch's No. 1 Cowden Brothers	Building rig.
Marland Oil Co.'s No. 4-C E. S. Hughes, Sec. 86, Blk. X, C. C. S. D. & R. G. N. Sur., SE NW	**Shut down 2,460 ft.; 600 ft. sulphur water.**
Prairie O. & Gas Co.'s No. 1 Colette, SW cor. Sec. 36, Blk. 31, University Sur.	Drilling 3,620 ft.; water shut off.

(Continued on Page 143)

CRANE AND UPTON DISTRICT
Average Daily Pipeline Runs, Week Ending February 12, 1927

Producing Co. and Farm—	No. Wells	Prod.
Atlantic, Sherk	1	38
Amerada, Hughes	4	428
Dixie, Hughes	10	724
Independent, Burleson	6	186
Hughes	1	25
Taylor	7	469
Wooley	8	1,028
Marland, Baker-A	1	35
Burleson	32	1,311
Burleson-A	3	20
Burleson-B	1	11
Cowden-A	2	221
Cowden-B	1	239
Durham	3	36
Estep	11	855
Hughes-B	1	27
Hughes-C	3	91
Hughes-D	5	654
Hughes-Gibbs	2	39
Keith-Zock	2	226
Sanger	19	667
Shirley	4	864
Powell	1	259
McMann, Baker	1	6
Hughes	1	80
Republic Prod., Hughes	5	136
Rio Grande, Estep	1	5
Chancey	1	299
Total	137	8,889

Humble Pipe Line Co. (Crane and Upton)

Producing Co. and Farm—	No. Wells	Prod.
Eastland Oil, Collett-Univ.	1	1,822
Gulf Prod., Baker	1	7
Baker-B	2	103
Hughes	3	279
J. T. McElroy	5	3,516
C. McElroy	4	2,047
C. McElroy "A"	2	1,209
Sherk-E	1	65
State-Lassiter	1	115
Estep	2	shut-in
Humble O. & R., Burleson	4	62
Ricker	1	30
Magnolia Pet., Univ.-Church	3	151
Univ.-Church	1	27
O'Keefe	3	463
State-Lassiter	1	19
Prairie O. & G., University	3	266
Sun Oil, Burleson	4	230
Baker	1	86
Simms and Atlantic, University	1	182
Tidal Oil, University-B	2	97
Texon O. & L., Sherk	1	30
Tidal Oil, University-C	1	38
T. P. Coal & Oil Co., Sherk	4	117
Lane-A	1	1,863
Lane-B	1	95
Wentz, Lane	2	101
Total	59	12,993

Texas Pipe Line Co. (Crane and Upton)

Producing Co. and Farm—	No. Wells	Prod.
The Texas Company, Burleson	4	89
King (Crane)	9	238
King (Upton)	8	438
Union Land F	1	10
Total	22	775

Roxana Pet. Corp. (Crane and Upton)

Producing Co. and Farm—	No. Wells	Prod.
Roxana, Bowen	6	1,863
Estep	3	175
Hughes	9	1,262
Total	18	3,300

Southern Crude Pipe Line

Producing Co. and Farm—	No. Wells	Prod.
Dixie Oil, Burleson	13	2,500
Total Crane-Upton County district, 249 wells, 28,457 bbls. of oil.		

(Continued on Page 141)

Roxana Pool is Extended Half Mile

Magnolia's Well in Northeastern Carson County Swabbing 575 Barrels During the First 24 Hours

By C. D. Lockwood
Staff Correspondent, Texas Panhandle Fields

Although 13 additional wells were producing in the Texas Panhandle this week, the total output dropped 1,378 bbls. to 130,707 bbls. and the daily average per well declined another 3 points to 137 bbls. Hutchinson County, with nine new producers, dropped 1,440 bbls. while Carson County, with four new ones, gained 226 bbls. and Gray and Wheeler Counties recorded little change, their losses having been slight. Hutchinson County's well average is now down to 150 bbls. daily.

Continued brisk activity in the northeastern Carson County sector is a feature of the field development but the only results which found their way into the production columns this week worthy of notice were achieved by the Magnolia Petroleum Co. in No. 1 fee, NW cor. NE of Section 91, Block 4. This well is a mile east and a little north of the discovery well in the Roxana Pool and it swabbed 575 bbls. during the first 24 hours from lime and granite wash pay at 3,163-82 feet. This is a much better well than the nearest producers which are diagonally across a quarter-section southwest of it. The Texas Company's No. C. R. Garner, SE cor. NE, Section 106, Block 4, northwest extension of the Roxana Pool, was practically a failure but pumped 40 bbls. of oil and 80 bbls. of water at 3,143-3,228 feet.

The Marland Oil Co. opened up a pool several miles northwest of the Roxana Pool with its No. 1 Burnett-E, in the SE cor., Section 117, Block 4. The well swabbed 200 bbls. at 3,085-3,150 feet in lime and granite wash. Empire Gas & Fuel Co. has offset it to the east with No. 1-C Burnett, and to the south with No. 1-B Burnett. The same company also owns the diagonal southeast acreage comprising a quarter-section.

The area just north of the old Carson County Field, in Block 5, came in for some attention this week when Marland Oil Co.'s No. 1-H Burnett, NE cor. SE, Section 125, Block 5, just across the line in Hutchinson County, produced 600 bbls. in 18 hours from pay at 3,075-78 feet. However, on the second day the output fell to 125 bbls. and on the third day the best it could do was 145 bbls. At latest report it was down to 75 bbls. but can probably be brought back to good production by cementing the 6-inch to shut out gas, which is being done.

Skelly Oil Co.'s No. 1 Bryan, NE cor. SW, Section 92, Block 4, in the Roxana Pool, topped lime and granite wash at 3,142 feet and was flowing 15 bbls. an hour while drilling at 3,180 feet.

The Humble Oil & Refining Co.'s test, in the south central part of Monroe County, is one of the most interesting in the Panhandle at this time. This is No. 1 Kilgore, NW cor., Section 28, Block 44, H. & T. C. Survey. With a surface elevation of 3,665 feet it reached the top of the lime several weeks ago at 2,695 feet, making its lime elevation plus 970 feet. This week it is drilling ahead slowly at 3,485 feet and the gas has increased to 30,000,000 feet. The elevation of the lime makes it look very favorable but experience during the past year has shown that in the Panhandle (as elsewhere) you never can tell.

Another well which hit the lime at a favorable elevation is the Marland Oil Co.'s No. 1 Carver, in the William Heath Survey, near the Moore County line, in Hutchinson County. The surface elevation is 3,370 feet and top of the lime was found at about 2,400 feet, making it just about 970 feet above sea level. This well will give a lot of information on the trend northwest of the Prairie Oil & Gas Co.'s No. 1 Cal Merchant, the "Big Creek" well, which has become a high-priced territory.

A. K. Whitehead, of Casper, Wyo., and Denver, Colo., has taken a block centering around Section 36, Block 2, G. H. & H. Survey, on the Sherman and Hansford County line. It carries a drilling clause requiring a well to be started within 90 days and to be drilled to 3,500 feet if necessary.

PANHANDLE COMPLETIONS

Carson County

Marland Oil Co.'s No. 1 Burnett-E, Section 117, Block 4, topped lime and granite wash pay at 3,085 feet, and at 3,150 feet swabbed 200 bbls. the first 24 hours; No. 1 Burnett-F, Section 117, Block 5, flowed 60 bbls. at 3,123-45 feet in granite wash. The Texas Company's No. 1 C. R. Garner, Section 106, Block 4, pumped 40 bbls. of oil and 80 bbls. of water from lime and granite wash pay at 3,143-3,228 feet; No. 1 M. P. Co. fee, SW cor. NW, Section 91, Block 4, swabbed and flowed 100 bbls. from pay topped at 3,159 feet and drilled to 3,170 feet.

Gray County

Boone Drilling Co.'s No. 1 J. S. Mackie, Section 115, Block B-2, was abandoned at 200 feet. Constantin's No. 1 W. F. Dial, in Section 33, Block 25, was completed as a gasser, good for 10,000,000 feet at 2,194-2,200, 2,263-65 and 2,298-2,525 feet. Total depth is 2,731 feet. Skelly Oil Co.'s No. 1 A. G. McKay was completed for 90,000,000 feet of gas at 2,630-2,740 feet. This is in Section 175, Block 3. The Texas Company's No. 1 O. N. Frasier, Section 162, Block 3, flowed 65 bbls. from granite wash at 3,315-21 feet.

Hemphill County

Dorning and others abandoned the location for their No. 1 R. J. Alexander in the Poitevent Survey.

Hutchinson County

Echo Oil Co.'s No. 1 Smith, Section 11, Block Y, made 100 bbls. after a 350-quart shot from 2,735-2,808 feet. Empire Gas & Fuel Co.'s No. 5 Johnson-B, Section 21, Block Y, made 90 bbls. at 2,813-77 feet following a 160-quart shot; No. 12 J. F. Weatherly, Section 19, Block Y, made 40 bbls. at 3,035-60 feet after a 100-quart shot. J. K. Hughes Developing Co.'s No. 6 W. L. Kingsland B, Section 6, Block B-4, was abandoned at 700 feet.

Marland Oil Co.'s No. 6 J. A. Whittenburg, Section 65, Block 46, swabbed 30 bbls. as a result of shooting from 2,823-33 feet. McIlroy Oil Co.'s No. 1 E. Cockrell, Section 4, Block B-3, flowed 75 bbls. naturally from 2,985-3,050 feet but will be deepened and shot. Midwest Exploration Co.'s No. 1 Smith-Dick, Section 5, Block Y, was shot with 100 quarts from 2,774-2,806 feet, total depth 2,812 feet, after which it was cleaned out and flowed 350 bbls.; No. 6 Smith, in the same section, swabbed 250 bbls. after an 80-quart shot at 2,730-65 feet.

Mudge Oil Co.'s No. 1 E. Cockrell, in Section 9, Block B-3, was shot with 330 quarts from 2,860-2,980 feet, total depth 2,985 feet, and swabbed 10 bbls. afterward. Navajo Oil Co.'s No. 1 E. Cockrell, Section 2, Block B-3, was shut down on top of pay at 2,983 feet, building storage.

Phillips Petroleum Co.'s No. 5 Johnson-Graham, in Mary Whitley Survey, swabbed 125 bbls. following a 160-quart shot at 2,956-92 feet. The location for the same company's No. 2 Johnson-Montford, in Section 66, Block 46, was abandoned; No. 7 W. L. Kingsland, Section 6 Block B-4, swabbed 70 bbls. after a shot of 180 quarts at 2,728-68 feet, total depth 2,771 feet; No. 5 Whittenburg-Patsburg, Section 67, Block 46, swabbed 600 bbls. at 2,825-2,900 feet.

Roxana Petroleum Corp.'s No. 1 Lee Bivins, in Section 86, Block 46, had 1,200 feet of oil in the hole from pay at 3,042-50 feet; No. 4-A Smith, Section 14, Block Y, made 300 bbls., 18 per cent water, when shot with 150 quarts at 2,888-2,920 feet. Skelly Oil Co.'s No. 13 Johnson, Section 20, Block Y, swabbed 25 bbls. at 2,981-84 feet but was not completed. Skiatex Oil Co.'s No. 6 Kingsland, Section 6, Block Y, flowed and swabbed 1,850 bbls. after a 510-quart shot at 2,860-2,980 feet. Southwestern Oil & Development Co.'s No. 4 Johnson, Section 21, Block Y, flowed 150 bbls. at 2,874-2,970 feet. Triangle Oil Co.'s No. 5 Smith, Section 5, Block Y, was plugged back from 2,748 feet to pay at 2,726-32 feet and swabbed 200 bbls., 10 per cent water.

Moore County

Cadman and others' No. 1 Sneed, Jr., pumped 224 bbls. in 6 days from pay at 3,125-40 feet and was completed. Master Oil Co.'s No. 1 Sneed, in Section 58, Block 6-T, will be completed as a gasser. It had gas at 2,040-78 and 2,105-2,310 feet, total depth 2,385 feet.

Wheeler County

Canadian Oil Co.'s No. 1 E. A. Linkey, Section 126, Block 23, was completed for 50,000,000 feet of gas at 1,960-80 feet. World Oil Co.'s No. 2 J. H. Jackson, Section 11, Block 27, was shot with 90 quarts from 2,235-65 feet, but without results and it was completed as an 8,000,000-foot gasser.

NEW LOCATIONS

Carson County

Marston Oil Co.'s No. 1 J. L. Noel, 330 feet north and east of SW cor. NE SE, Section 198, Block 3, I. & G. N. Survey. Skelly Oil Co.'s No. 2 H. Shafer, 330 feet south and east of NW cor. NE, Section 87, Block 4, same survey; No. 3, 330 feet south and east of NW cor. NE, Section 86, Block 4, same survey; No. 4, 330 feet south and east of NW cor. Section 86, Block 4, same survey.

Castro County

Colorado Oil & Refining Co.'s No. 1 M. Slemons, 660 feet north and 1,520 feet east of SW cor., Section 78, Block M-7, B. S. & F. Survey.

Gray County

Wilcox-Pampa Oil Co.'s No. 26 Worley & Reynolds, 330 feet north and east of SW cor. NW SE, Section 62, Block 3, I. & G. N. Survey.

Hutchinson County

Barnsdall Oil Co.'s No. 3 J. E. Pritchard, 465 feet south and east of NW cor. SE SW, Section 3, Block B-4, D. & S. E. Survey. Devonian Oil Co.'s No. 8 Johnson Brothers, 1,125 feet north and 330 feet east of SW cor., Lot 4, Johnson Brothers Subdivision of the M. Whitley Survey, No. 1. Dixon Creek Oil Co.'s No. 32 H. E. Smith and others, 330 feet north and east of SW cor. NW SE, Section 5, Block Y. Empire Gas & Fuel Co.'s No. 7 Johnson Brothers-B, 330 feet south and west of NE cor. south 120 acres of west 160 acres of Section 21, Block Y. First National Oil Co.'s No. 1 E. Cockrell, 330 feet south and west of NE cor. of the S half SW, Section 3, Block B-3, D. & S. E. Survey. Manhattan Oil Co.'s No. 2 Johnson

(Continued on Page 140)

WILDCAT OPERATIONS IN PANHANDLE

Week Ending February 19, 1927

ARMSTRONG COUNTY

Company, Well, Farm Name, Section and Block—	Remarks—
United Oil & Trust Co.'s No. 1 J. F. Rock, Sec. 162, Blk. 4, H. & G. N. Sur.	Spudded and shut down.

BRISCOE COUNTY

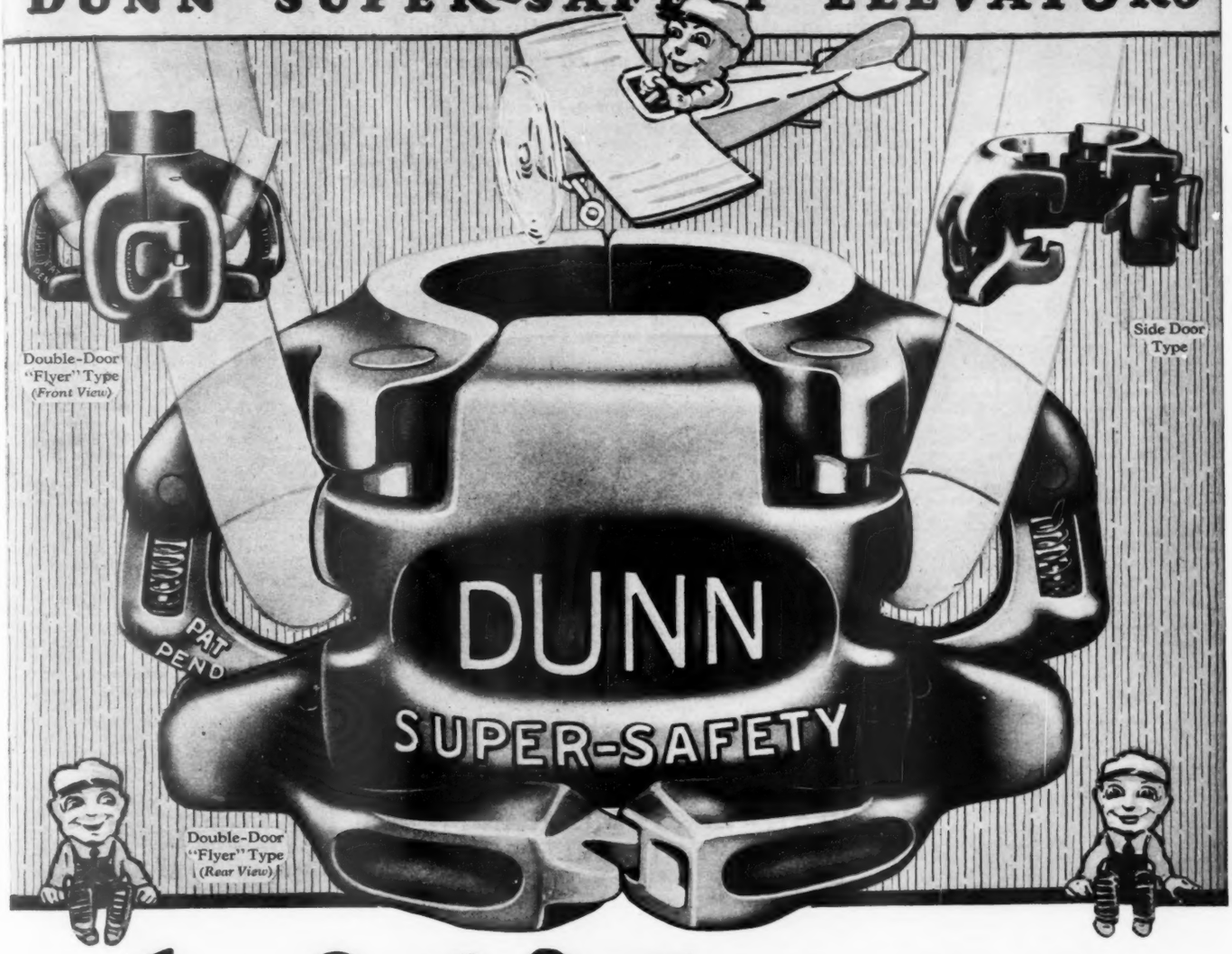
Smith & Baker's No. 1 J. W. Owens, Sec. 11, Blk. GC1	Location.

CARSON COUNTY

Amatex Oil Co.'s No. 1 E. S. Polling, Sec. 33, Blk. 2-Y	Shut down 1,980 ft.
Champlin Ref. Co.'s No. 1 E. F. Bryan, Sec. 93, Blk. 4	Set 12-in. 600 ft.; drilling 1,800 ft.
Champlin Ref. Co.'s No. 4 Bryan, Sec. 93, Blk. 4	Set 8-in. 2,368 ft.; drilling 2,600 ft.
Champlin Ref. Co.'s No. 6 Bryan, Sec. 92, Blk. 4	Drilling 2,000 ft.
Delmar Oil Co.'s No. 1 T. D. Lewis, SW cor. Sec. 115, Blk. 4	First gas 2,640 ft.; 7,000,000 ft. gas 2,800 ft.; fishing for tools.
Empire G. & F. Co.'s No. 1 Lane, NW cor. SW, Sec. 72, Blk. 4	Drilling 2,460 ft.; 25,000,000 ft. gas.
Empire G. & F. Co.'s No. 2 M. P. Co. fee-A, NE cor. SW Sec. 91, Blk 4	Rigging up.
Empire G. & F. Co.'s No. 3 M. P. Co. fee-A, SE cor. SW Sec. 91, Blk. 4	New location, cellar.
Gulf Prod. Co.'s No. 1 Noel, SE cor. SW Sec. 198, Blk. 3	Drilling 460 ft.
Humble O. & R. Co.'s No. 1 Burnett, Acct. 4, Sec. 127, Blk. 5	Skidding rig 2,760 ft.
J. K. Hughes Developing Co.'s No. 1 F. E. Percival, NE cor. E ½ NW Sec. 199, Blk. 3	Drilling 200 ft.
J. K. Hughes Developing Co.'s No. 2 F. E. Percival, NW cor. E ½ NW Sec. 199, Blk. 3	Rigging up.
F. Knappenberger's No. 1 E. F. Bryan, Sec. 107, Blk. 4	Show oil 3,080 ft.; top pay 3,170 ft.; shot 125 qts. 3,130-3,215 ft.; little oil.
Magnolia Pet. Co.'s No. 1 fee, No. 244, Sec. 91, Blk. 4	Top pay 3,163 ft.; 1,800 ft. oil; cleaning out 3,168 ft.
Marland Oil Co.'s No. 1 Burnett-I, Sec. 102, Blk. 4	Show oil 3,020 ft.; cleaning out 3,138 ft.
Marland Oil Co.'s No. 1 Burnett-J, C NE NE, Sec. 121, Blk 5	Drilling 450 ft.
Marland Oil Co.'s No. 1 J. W. McConnell, SE cor. W ½ NE Sec. 67, Blk. 4	Spudding.
Marland Oil Co.'s No. 1 C. R. Garner, NE cor. Sec. 98, Blk. 4	Set 10-in. 1,113 ft.
Marston Oil Co.'s No. 1 E. F. Bryan, Sec. 93, Blk. 4	Drilling 2,410 ft.
Marston Oil Co.'s No. 6 (was No. 5) Bryan, Sec. 107, Blk. 4	Drilling 2,240 ft.
McMan O. & G. Co.'s No. 2 E. F. Bryan, Sec. 107, Blk. 4	Drilling 2,810 ft.
McMan O. & G. Co.'s No. 3 E. F. Bryan, Sec. 92, Blk. 4	Drilling 2,800 ft.
McMan O. & G. Co.'s No. 4 E. F. Bryan, Sec. 93, Blk. 4	Drilling 2,400 ft.
McMan O. & G. Co.'s No. 5, E. F. Bryan, Sec. 107, Blk. 4	Drilling 2,100 ft.
McMan O. & G. Co.'s No. 1 J. L. Noel, SW cor. SE SE Sec. 198, Blk. 3	Drilling 200 ft.
McMan O. & G. Co.'s No. 1 F. E. Percival, NE cor. W ½ NE Sec. 199, Blk. 3	Rotary; drilling 1,690 ft.
McMan O. & G. Co.'s No. 2 F. E. Percival, NW cor. W ½ NE Sec. 199, Blk. 3	Rigging up rotary.
Mound Valley Oil Corp.'s No. 1 Witter, Sec. 1, Blk. 7	Drilling 3,172 ft.; shut down.
Navajo Oil Co.'s No. 1 E. S. Polling, Sec. 33, Blk. 2-Y	Skidding rig, 1,750 ft.
Nunn & McAulev's No. 2 Bryan, SE cor. NW SW, Sec. 107, Blk. 4	Underreaming 8-in. 3,000 ft.
Osborne et al's No. 1 F. E. Percival, NW cor. E ½ NE Sec. 199, Blk. 3	Rigging up.

(Continued on Page 142)

DUNN "SUPER-SAFETY" ELEVATORS



the *Safest* Elevators-

(DUNN TOOLAGRAM)

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Seminole Needs Field Storage Badly

Production the Past Week Greatly Beyond Shipping Facilities. Much Oil Going to Storage in Oklahoma

By J. L. Dwyer
Staff Correspondent, Oklahoma Fields

The Seminole Field in Seminole County passed over the 300,000-bbl. mark last week, and its highest recorded figure was 305,000, which was made on Thursday. The Seminole situation is still very acute, and Ray Collins, the umpire who was appointed last November, is making a survey of conditions there. It is difficult to imagine what can be offered by the umpire's survey, as it is thought that any possible suggestions or solutions he may offer have been already presented and considered by the executives of the companies operating there.

The lamentable fact at Seminole is the lack of steel storage. The majority of tankage in the field is pipeline tankage, and with the field's daily production approximately 50,000 bbls. greater than the pipeline facilities, and prospects of still another 50,000 bbls., it would seem reasonable that a program of steel tank construction would be the best insurance against undesirable conditions.

Briefly summarized, the crude oil purchasing companies are placing about 100,000 bbls. daily into storage in Oklahoma and Kansas. They have stated that they are not anxious to accept more oil at this time, but are taking what is offered in order to take the proper care of their customers. They do not feel inclined to purchase Seminole oil at $2.20 per barrel and also expend the necessary 45 cents per barrel which steel tankage costs. There are many producers at Seminole who have their own refining and transporting facilities, but who have failed to take advantage of them. It is this class of producer whom the crude purchasing companies contend should erect their own storage facilities.

Seminole County

Gypsy Oil Co.'s No. 1 Grayson, SE cor. NE NE, Section 33-10-6, is dry in the Wilcox sand at 4,576-82 feet. Amerada Petroleum Corp.'s No. 1 Baker, SW cor. SE NW, Section 28-10-6, has a hole full of water in the Wilcox sand at 4,526-35 feet and is abandoned. Pure Oil Co.'s No. 4 Thompson, NE cor. SE SW, Section 33-11-8, found the Wilcox sand at 4,110-95 feet, swabbed 210 bbls. naturally and after two shots is averaging 333 bbls. Barnsdall Oil Co.'s No. 1 J. Davis, SW cor. NW, Section 11-9-5, is making 257 bbls. in the Earlsboro sand at 3,534-66 feet. Gypsy Oil Co.'s No. 1 Cudjo, NE cor. SW NE, Section 4-9-6, was completed for 1,160 bbls. at a total depth of 4,389 feet in the Wilcox sand, the oil coming from both the Wilcox and the Hunton formations. Mid-Continent Petroleum Co.'s No. 6 Rentie, NE cor. SE SE, Section 14-9-6, is making 300 bbls. from the Wilcox sand at 4,226-41 feet after being shot. The location for No. 11 Rentie, NW cor. NE SE, Section 14-9-6, has been abandoned. Amerada Petroleum Corp.'s No. 1 Fixico, SW cor. SE NE, Section 23-9-6, cased off the Hunton lime and went on to the Wilcox sand at 4,172-98 feet and swabbed 325 bbls. naturally. The well was put on air and flowed 1,032 bbls. No. 2 Killingsworth "A," NE cor. SW NE, Section 23-9-6, shot 12 quarts in the Wilcox sand at 4,200-18 feet and produced 625 bbls. No. 3 Rentie, NW cor. NE, Section 23-9-6, has been completed for 2,096 bbls. in the Wilcox sand at 3,984-4,073 feet. Carter Oil Co.'s No. 6 Grisso, NW cor. NE SW, Section 23-9-6, swabbed 320 bbls. naturally from the Wilcox sand at 4,139-55 feet and when the air method was applied the well flowed 1,250 bbls. Indian Territory Illuminating Oil Co.'s No. 1 Goodin, NE cor. Section 23-9-6, had the top of the Wilcox sand at 4,210 feet, drilled to 4,219 feet and is swabbing 511 bbls. Tidal Oil Co.'s No. 1 Harjo, NE cor. NW SE, Section 23-9-6, swabbed 50 bbls. in the Wilcox sand at 4,125-47 feet, was shot with five quarts and produced 410 bbls. No. 4 Harjo, SE cor. NW SE, Section 23-9-6, had the Wilcox sand at 4,142-58 feet, plugged back to 4,157 feet and swabbed 300 bbls.

Tidal Oil Co.'s No. 7 Harjo, SW cor. NW SE, Section 23-9-6, is swabbing 200 bbls. from the Wilcox sand at 4,180-87 feet. Barnsdall Oil Co.'s No. 1-A Carter, SE cor. NW, Section 24-9-6, had the top of the Wilcox sand at 4,158 feet, drilled to 4,170 feet and produced 510 bbls. Pure Oil Co.'s No. 17 Strothers, SE cor. SW SW, Section 26-9-6, is flowing 788 bbls. by air from the Wilcox sand at 4,003-42 feet. Atlantic Oil Producing Co.'s No. 3 Cudjo, SE cor. NE SW, Section 35-9-6, had an initial production of 3,693 bbls. from the Wilcox sand at 4,087-4,160 feet. Atlantic Oil Producing Co. and Independent Oil & Gas Co.'s No. 1 J. Cudjo, NW cor. SE, Section 35-9-6, swabbed 15 bbls. naturally, was put on the air and flowed 785 bbls. from the Wilcox sand at 4,200-10 feet. Carter Oil Co.'s No. 2 Cudjo, NE cor. NW SW, Section 35-9-6, flowed 1,865 bbls. naturally in the Wilcox sand at 4,108-30 feet. The well was shot with 20 quarts and air applied after which the well flowed 3,460 bbls. Sinclair Oil & Gas Co.'s No. 3 Cudjo "A," NW cor. NE NW, Section 35-9-6, was shot with 20 quarts, put on air and produced 4,770 bbls. Location for Amerada Petroleum Co.'s No. 1-A Rascoe, NE cor. SW, Section 15-8-6, has been abandoned.

Magnolia Petroleum Co.'s No. 1 Youngblood, SW cor. NW, Section 22-8-7, is swabbing 30 bbls. from sand at 3,275-82 feet. Independent Oil & Gas Co. and Atlantic Oil Producing Co.'s No. 5 Long, NE cor. SW NE, Section 32-8-8, is dry and abandoned in the Wilcox sand at 4,290-4,305 feet. Magnolia Petroleum Co.'s No. 2 Harber, NE cor. NW SE, Section 6-7-8, was put on the pump and is producing 20 bbls. from the Wilcox sand at 4,225-35 feet. Location has been made for No. 1 Reed, SE cor. Section 31-8-7. Carter Oil Co. has the rig material on the ground for No. 1 Bora, C SE SE, Section 27-8-8. Barnsdall Oil Co. has made location for No. 1 Graull, SW cor. SE SW, Section 10-9-7. Empire Gas & Fuel Co. has made location for No. 6 Lacy, NE cor. NW SW, Section 14-8-6. Carter Oil Co. made the location for No. 4 Harjoche, NE cor. SW NW, Section 14-8-6. Location for No. 3 Harjoche, SE cor. SW NW, Section 14-8-6, has been made also. T. B. Slick has the rig up for No. 2 Born, NE cor. SW SE, Section 35-9-6. Carter Oil Co. has made the location for No. 11 M. Killing, NW cor. NE NW, Section 23-9-6. Location for No. 10 M. Killing was made in the NE cor. NW NW, Section 23-9-6. Location for No. 6 G. F. Killing was made in SW cor. SE SW, Section 14-9-6. Amerada Petroleum Corp. is digging cellar for No. 7 Anderson, NE cor. SW NW, Section 15-9-5. Barnsdall Oil Co. made the location for No. 2 Sam Pack, NW cor. SE SE, Section 10-9-5. Magnolia Petroleum Co. has made location for No. 4 Simpson, SE cor. SW SE, Section 10-9-5. Location for No. 3 Simpson was made NE cor SW SE, Section 10-9-5. Barnsdall Oil Co. and Mid-Continent Petroleum Co. have the rig on the ground for No. 10 Williams, SW cor. NE SW, Section 33-11-8. Pure Oil Co. is rigging up on No. 2 Thompson, SW cor. SE SW, Section 33-11-8.

Osage County

Phillips Petroleum Co.'s No. 8, NE cor. SE NW, Section 7-27-6, had the Burbank sand at 2,953-90 feet, shot 60 quarts and swabbed 100 bbls. Peters Petroleum Co.'s No. 6, SE cor. NW NW, Section 17-27-6, had Burbank sand at 2,941-3,006 feet and made 435 bbls. naturally and when shot with 100 quarts increased to 900 bbls. Phillips Petroleum Co. has made location for No. 3, NE cor. NW SW, Section 17-27-6. Kewanee Oil & Gas Co. is building the rig for No. 8, SW cor. NW NW, Section 34-27-6. The rig is also being built for No. 9, NE cor. NW, Section 34-27-6. Devonian Oil Co.'s No. 1, NE cor. SE, Section 31-25-7, is dry and abandoned at 3,010 feet. Marland Oil Co.'s No. 1, NW cor. NE NE, Section 34-25-9, made 550 bbls. the first 24 hours from the Bartlesville sand at 2,108-20 feet. Peters Petroleum Co.'s No. 1, SE cor. Section 18-24-8, is a dry hole at 2,965 feet. Sterling Oil & Gas Co. has made location for No. 10, CEL W half E half SE, Section 1-22-9. Ray Branstetter's No. 2, NE cor. NW, Section 23-22-9, is drilling at 1,100 feet. Skelly Oil Co. made location for No. 5, SW cor. NW SE, Section 7-21-11. Tidal Oil Co. made the location for No. 7, C W half NE, Section 7-21-11. The location was also made for No. 12, C SW, Section 15-21-12. Sand Springs Home's No. 1, NW cor. Section 25-20-10, found the Bartlesville sand at 1,918-2,023 feet to be dry and the well is abandoned at 2,760 feet. Devonian Oil Co.'s No. 11, NW cor. NE NW, Section 20-20-12, is dry and abandoned at 2,200 feet in the Hominy sand.

Creek County

Atlantic Oil Producing Co. has made location for No. 1 Kimble & Reading, NE cor. SE, Section 15-14-10. Cumberland Petroleum Co. has moved a machine out for No. 4 Tiger, NE cor. SE SE, Section 13-17-10. Thompson & Back have the rig on the ground for No. 1 Turner, NE cor. SE NW, Section 12-17-10. Carter Oil Co. has a rig on the ground for No. 1 Harris, NW cor. SW NE, Section 12-17-10. L. C. Wheeler has the rig up for No. 17 Oakhurst, Townlot No. 29, Block 17, Section 6-18-12. J. H. Rebold has the machine on the ground for No. 1 Oakhurst, Townlots Nos. 1 and 2, Block 17, Section 6-18-12. Kolb and others have the rig up for No. 1, Lot 23, Block 24, in the Oakhurst Townsite Pool, Section 6-18-12. Sunray Oil Corp. & Munn's No. 1 Yargee, SW cor. SE, Section 24-14-10, is dry, with a hole full of water in the Wilcox sand at 3,255-57 feet. C. O. Buckles' No. 1-A Barnett, CWL SE NE, Section 28-17-11, is making 10 bbls. from the Glenn sand at 1,708-65 feet after a 40-quart shot. Cumberland Petroleum Co. has the rig up for No. 1 Berryhill, CEL NW SE, Section 18-17-11. J. H. Wright's No. 16 T. Tahkaney, CEL NE NW, Section 24-17-10, is doing 60 bbls. from the Dutcher sand at 2,468-2,501 feet with a total depth of 2,515 feet. O. M. Irelan's No. 2 Taconey, CEL SW NW, Section 11-17-10, had a hole full of water in the Wilcox sand at 2,859-3,167 feet and is dry and abandoned. Dixie Oil Co. has a rig on the ground for No. 4 Francis, NW cor. SE SW SW, Section 5-17-10. Devonian Oil

POOREST WEEK IN MEXICAN FIELDS; TWO OF SEVEN COMPLETIONS, 600 BBLS.

By George Blardone
Staff Correspondent, Mexican Fields

TAMPICO, Mexico, Feb. 18.—The poorest week in Mexican fields, from the viewpoint of completions, for many months characterized last week's operations. Only seven wells were completed, five being failures and two producers. The new production secured totals, say 600 bbls.

In the northern fields, Ebano sector, Mexican Petroleum Co.'s No. 139 East Dicha finished for 550 bbls. at 1,725 feet, a shallow well. Venable and others' No. 56 Caracol, just west of Tampico, has a 50-bbl. well, flowing by heads, which finished at 2,635 feet. The northern fields failures follow: La Corona Petroleum Co.'s No. 10 Chijoles, Panuco, is dry at 2,195 feet; Transcontinental Petroleum Co.'s No. 13 Las Piedras drilled into salt water at 1,855 feet; National Lines' No. 39 Tanchicuin is a dry hole at 2,235 feet.

In the south fields, Huasteca Petroleum Co.'s No. 96 Tierra Blanca drilled into salt water at 2,082 feet; and Mexican Eagle Oil Co.'s No. 49 Cierro Veijo is dry at 2,225 feet.

Field Operations

While operators are feeling more cheerful over governmental conditions, in so far as new field operations are concerned, new work being ordered out has not had a chance yet to make much of a dent in the field reports of explorations absolutely under way at this writing.

Operations extant at this time in the Panuco and Cacalilao sectors of the northern fields are best described as follows: La Corona Petroleum Co.'s No. 193, Lot 1, Cacalilao, is in lime at 1,820 feet; No. 192, Lot 4, same, is in the Tamasopa at 2,005 feet; No. 136 Salvasuchi is in the San Felipe at 1,505 feet. Cia. Pet. Francia Mexico, No. 21, Lot 4, Tanchicuin, has cemented 8-inch in gray lime at 1,210 feet. East Coast Oil Co.'s No. 69 Lag. Milpa is spudding. Cia. Pet. Chileno Mexicano's No. 42 Delicias has cemented 6-inch in gray lime at 1,255 feet. International Petroleum Co.'s No. 291, Lot 4, Cacalilao, is in gray lime at 1,630 feet; its No. 292, Lot 8, cemented 8-inch in gray lime at 1,201 feet; No. 293, Lot 4, is in gray shale at 1,244 feet; No. 294, Lot 4, is in gray shale at 546 feet; No. 295, Lot 4, is rigging; Mexican Sinclair Petroleum Corp.'s No. 147, Lot 1, Cacalilao, is in blue shale at 875 feet; No. 141, Lot 2, is in gray lime at 1,945 feet; No. 142, Lot 2, is a derrick; No. 143, Lot 3, is in green lime at 1,595 feet; and No. 150, Lot 3, is a derrick. Cia. Pet. William Nienau's No. 7 W. Maguabes is in blue shale at 1,100 feet. Transcontinental Petroleum Co.'s No. 280, Lot 4, Cacalilao, is in gray lime at 1,630 feet; its No. 63 Paciencia is in gray lime at 2,165 feet; its No. 4, Lot 2, Tanchicuin, is in gray lime at 2,150 feet; its No. 16 Rufino cemented 8-inch in gray lime at 1,300 feet. Cia. Pet. Territorial's No. 41 Salvasuchi is in shale at 175 feet.

South Fields

In the south fields, drilling operations are best reflected as follows: Huasteca Petroleum Co.'s No. 84 Tierra Blanca is

(Continued on Page 119)

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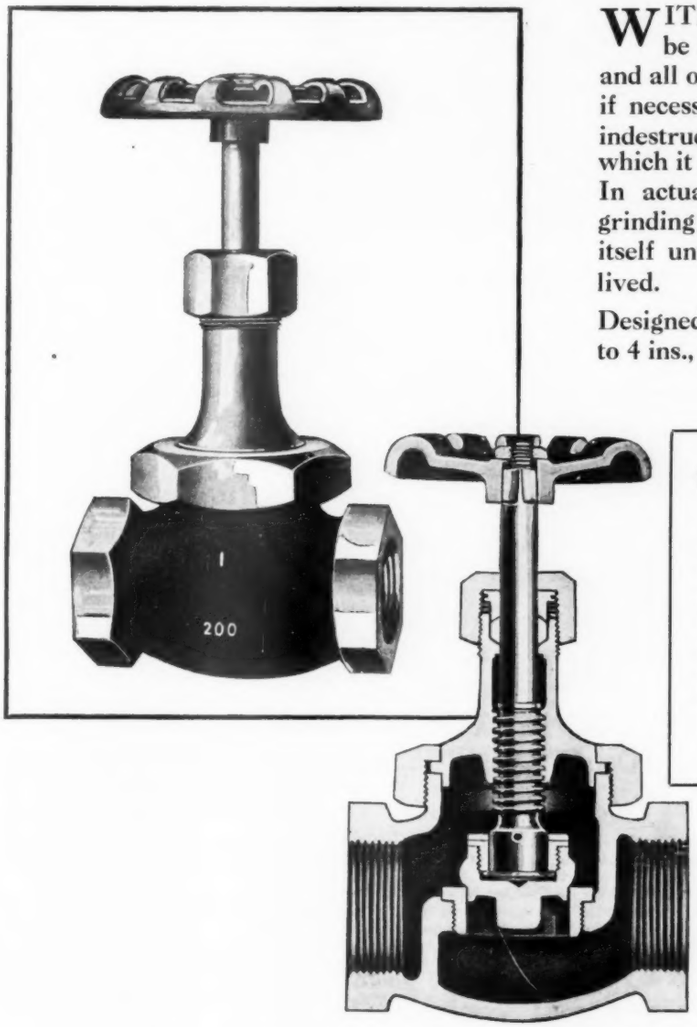

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Co. and Independent Oil & Gas Co. have built the rig for No. 2 Bigpond, NE cor. SW NE, Section 36-15-7. Sinclair Oil & Gas Co. is repairing the rig in preparation to deepen No. 9 Riverbed, C SW NE, Section 6-18-7.

Muskogee County

K. Wassof has moved out a machine for No. 1 Robbins, C SE, Section 34-15-16. Denton & Marshall have moved out the machine to drill No. 1 Roberts, CWL NE NW, Section 16-15-17. Jolly & Ogg Oil Co.'s No. 2 P. Lewis, NW cor. SW NE, Section 17-15-17, was completed for 28,800,000 feet of gas in sand at 1,382-93 feet. J. L. Selby has the machine on the ground for No. 1 Warner, NW cor. SW SW NE, Section 17-15-17. W. R. Sommerville's No. 2 Warrior, SE cor. NE NE NE, Section 17-15-17, is a 15-bbl. well in sand at 1,440-50 feet.

Okfuskee County

E. L. Robinson's No. 1 Berryhill, NE cor. SW, Section 35-11-9, lost the hole and has been abandoned at 1,570 feet. Amerada Petroleum Corp. is digging the cellar for No. 1 Cain, SW cor. Section 31-10-10.

Pottawatomie County

Tidal Osage Oil Co.'s No. 1 Kenyon, SW cor. SE SE, Section 3 8-4, is dry at 4,860 feet in the Wilcox sand topped at 4,422 feet. Magnolia Petroleum Co.'s No. 1 Risenhoover, SW cor. SE NE, Section 14-7-4, is pumping 60 bbls. from the Hunton lime, total depth 3,945 feet. Magnolia Petroleum Co.'s No. 1 Mull, NE cor. SE, Section 15-7-4, has been completed for 614 bbls. in the Hunton lime at 3,642-57 feet.

Hughes County

Amerada Petroleum Corp.'s No. 1 Hully, NW cor. Section 6-9-10, was completed for 801 bbls. in the Hunton lime at 3,754-59 feet.

Okmulgee County

French & Garrett have the rig on the ground for No. 1 Strip, NW cor. NE NE, Section 7-11-12. Sheldon Oil Co. has the rig on the ground for No. 2 Skelton, SW cor. SE, Section 15-13-12. R. C. Vincent and others have built the rig for No. 2 Anderson, NW cor. SE, Section 3-12-11, to be a twin well. Phillips Petroleum Co. has moved the rig material out for No. 1 Burton, CEL NW NE, Section 4-14-12. Tiger Mountain Oil Co. deepened No. 12 Huckaby, SW cor. SE, Section 25-14-11, and found water in the Wilcox sand at 2,923-33 feet and is now shut down. X. K. Stout has the rig up for No. 2 V. Phillips, CNL NE NE, Section 20-16-14. M. C. French and others' No. 4 Hawkins, CWL NE NE, Section 7-11-12, was shot with 60 quarts in sand 1,963-86 feet and is making 100 bbls. Sheldon Oil Co.'s No. 1-A Skelton, C SW SE, Section 15-13-12, is making 100 bbls. from a stray sand at 1,963-76 feet after a 10-quart shot. J. H. Rebold's No. 3 Jones, CWL NE NW, Section 27-13-11, is making 10,000,000 cubic feet of gas from sand at 2,491-98 feet. Devonian Oil Co.'s No. 3 Adam, CWL NE NE, Section 4-14-12, had the Wilcox sand at 2,718-38 feet where it was shot with 25 quarts and is making 75 bbls. Savoy Oil Co.'s No. 2 Grayson, CEL SE SE, Section 19-16-14, was shot with 80 quarts in the Glenn sand at 1,737-1,812 feet and is dry. Devonian Oil Co.'s No. 10 S. Tiger, CWL E half W half SE, Section 24-16-12, is producing 15 bbls. from the Wilcox sand at 2,228-51 feet. The Texas Company has the machine out for No. 1 L. Anderson, SE cor. SW NE, Section 3-15-14. Nebokla Oil Co.'s No. 5 Harris, NW cor. SE, Section 1-14-14, is a 75-bbl. well in sand at 1,460-73 feet.

J. K. Gardner and others' No. 1 S. Scott, CNL NW NE, Section 35-13-13, is dry and abandoned at 2,905 feet. G. E. Simons and Roxana Petroleum Corp. are spudding in No 10 Reynolds, CEL SE NW, Section 15-13-14. J. A. Hull Co.'s No. 6 Rentie, CSL SW SW, Section 5-13-15, an old well deepened, is dry at 3,110 feet. Nicholson Corp.'s No. 4 Davis, C NE SE, Section 13-11-13, is making 8,000,000 feet of gas in sand at 1,860-75 feet.

Tulsa County

W. B. Pine's No. 1 Thatcher, NW cor. SW, Section 17-18-14, is drilling at 300 feet. Superior Oil Corp. has the rig on the ground for No. 7 McKee, CNL SW SW, Section 6-19-10. Hall and others' No. 1 Hawkins, SW cor. SE, Section 5-18-14, is dry and abandoned in the Wilcox sand at 1,978-2,130 feet. Superior Oil Co.'s No. 6 Burnett, CWL NE NW, Section 7-19-10, shot 90 quarts in the Layton sand at 1,150-75 feet and is producing 25 bbls. No. 6 McKee, NE cor. SW SW, Section 6-19-10, is a 95-bbl. well in the Red Fork sand at 1,980-2,002 feet after a 90-quart shot.

In the heart of the business district of Earlsboro, in the late winter, showing what wet weather and heavy hauling does to an Oklahoma dirt road. The picture elsewhere on this page shows the same street under better weather conditions.

Main Street in Earlsboro, in the Seminole territory, Oklahoma, in good weather.

GREENWOOD COUNTY CONTINUES TO LEAD IN FIELD ACTIVITY

By J. L. Dwyer
Staff Correspondent, Kansas Fields

Greenwood County led the Kansas fields in activity during the past week. The interest in western Kansas which had its inception when the Skelly Oil Co. and Hartman & Skaer found production in Reno County, is on the wane and will require fresh discoveries to revive it.

Butler County

Lackawana Oil & Gas Co's No. 1 Dillenbeck "A," C S half SE SE, Section 35-25-4, is a 125-bbl. well in sand at 2,387-2,417 feet. Sheldon and others' No. 1 Robbins, NW cor. Section 21-25-8, is dry and abandoned at 2,733 feet. Empire Gas & Fuel Co. is building the rig for No. 1 Hoerman, NW cor. NE SW, Section 20-26-3. Phillips Petroleum Co. is digging cellar at No. 1 Marmane, SW cor. SE NW, Section 20-26-3. Location has been made for No. 1 Nichols, SE cor. SW NE, Section 33-26-6. Rogers and others' No. 12 Drum Bitler, NW cor. NE SE, Section 20-26-8, is drilling at 1,265 feet. No. 13 Drum Bitler, NE cor. SW NW, Section 29-26-8, is drilling at 900 feet. No. 2 Drum Bitler "B," NW cor. SW NE, Section 31-26-8, is drilling at 550 feet. Safford and others' No. 9 Safford, NE cor. SE NE SE, Section 26-27-4, is making 30 bbls. from sand at 2,520-32 feet. Davis, Hazlett and others are putting up the rig for No. 1 Lewis, NW cor. SW, Section 3-27-6. Johnson and others have the rig up for No. 2 Beedles, NE cor. SE SW, Section 4-27-6. Phillips Petroleum Co. is building the rig for No. 1 Edwards, SW cor. SE NE, Section 4-27-6. Rosenthal, Lassen and others have the rig up for No. 3 Shaffer, NW cor. SW SE, Section 4-27-6. Phillips Petroleum Co.'s No. 1 League, SW cor. SE SW, Section 8-27-6, is dry at 3,161 feet. Mid-Kansas Oil Co.'s No. 5 Blakeman, SW cor. SE SW, Section 3-28-6, is good for 55 bbls. in sand at 3,025-35 feet. The rig is being built for No. 1 Gilson, NW cor. SW SE, Section 3-28-6. Magnolia Petroleum Co.'s No. 1 M. Blakeman, NE cor. SE SE, Section 4-28-6, is a 20-bbl. well in sand at 3,069-76 feet.

Chase County

Preston & Pasewalk's No. 2 Neibert, C NW NE, Section 36-18-6, is drilling at 800 feet. No. 3 Lipps, C NE SE, Section 30-18-7, was completed for 2,500,000 feet of gas in sand at 1,186-1,200 feet. Empire Gas & Fuel Co.'s No. 8 Lipps, C NW NW, Section 32-18-7, is a location.

Coffey County

Nathan and others have abandoned the location for No. 1 Underwood, NW cor. NE, Section 3-22-14.

Cowley County

Branson and others' No. 1 White, SE cor. SW SW, Section 7-30-6, is dry and abandoned at 2,925 feet. The Texas Company made the location for No. 1 Willie, NW cor. NE, Section 18-31-3. Empire Gas & Fuel Co. made location for No. 2 Eastman "C," SE cor. NE NW, Section 6-31-6. Mississippi Valley Oil Co.'s No. 1 Stewart, SE cor. SW, Section 6-32-3, is dry at 3,503 feet. T. B. Slick's No. 2 E. Carson, NW cor. SW NW, Section 20-32-3, has been abandoned at 2,700 feet. Doric Oil Co.'s No. 1 Smith, NW cor. SE NW, Section 18-33-7, drilled to

(Continued on Page 122)

Wagoner County

Wolf Oil Co.'s No. 1 Rogers, CSL SE NE, Section 6-19-16, is dry and abandoned at 767 feet. H. C. Tyson's No. 2 Littlehead, SW cor. NW NW, Section 13-16-15, is a dry hole at 936 feet. Swift and others' No. 1 Rittenhouse, C W half NW, Section 33-19-17, is dry and abandoned at 387 feet Shurrel and others' No. 1 Brown, NE cor. SW, Section 2-16-15, has been abandoned at 1,850 feet. Mitchell Oil Co. has the machine at the location for No. 4 M. Smith, CNL SW NE, Section 2-16-16.

Rogers County

F. C. Winters' No. 1 McNab, SE cor. SW, Section 28-20-15, is a dry hole at 1,472 feet.

Payne County

Mid-Kansas Oil & Gas Co.'s No. 1 Griswold, NE cor. NW, Section 33-17-4, has been abandoned at 4,534 feet. Mulberry Oil Co.'s No. 4 Sharrum, NE cor. NW NW, Section 5-17-14, is producing 110 bbls. from sand at 4,242-47 feet, after being shot twice. No. 4 Ballard, SE cor. SW SW, Section 32-18-4, was shot with 20 quarts in sand at 4,179-4,200 feet and completed for 650 bbls.

Pawnee County

Gypsy Oil Co.'s No. 1 Johnson, SE cor. NE, Section 23-18-9, is dry in both the Wilcox and Turkey Mountain sands. The total depth is 3,540 feet. Sunray Oil Corp.'s No. 1 Kinder, NE cor. SW NE, Section 13-20-9, is producing 15 bbls. from the Hominy sand at 2,715-25 feet. Barnsdall Oil Co.'s No 1 School Land, SW cor. NE, Section 16-21-7, is drilling at 380 feet. Continental Oil Co.'s No. 1 Making, SE cor. NE SE, Section 32-20-5, was shot with 60 quarts in sand at 2,767-78 feet and is pumping 30 bbls. Blackwell Oil & Gas Co.'s No. 1 Hamers, SW cor. NW, Section 2-20-6, was completed for 7,000,000 feet of gas in sand at 3,098-3,108 feet. Twin State Oil Co.'s No. 3 Sallee, NW cor NE SE, Section 32-20-6, is a dry hole at 3,692 feet.

Kay County

Mid-Continent Petroleum Co.'s No. 4 School Land, NE cor. SE SW, Section 16-29-1w, is dry and abandoned at total depth of 3,875 feet. Comar Oil Co.'s No. 1-A Day, NE cor. SE, Section 20-29-1w, is dry and abandoned at total depth of 2,764 feet. The rig is being built for No. 12-W Buell, NW cor. SE NE, Section 21-29-1w. Cellar is being dug for No. 1-W McCormick, NW cor. SE, Section 21-19-1w. The slush pond is being dug for No. 6-W McCullough, SE cor. SW SE, Section 5-28-1w.

Logan County

Ramesy Brothers are building a rotary rig for No. 1 Pool, SE cor. Section 25-17-4w, to make a 4,500-foot test.

Garfield County

Sinclair Oil & Gas Co.'s No. 20 Kisner (East), NW SE NW NE, Section 19-22-3w, had top of sand at 1,359 feet and drilled in to 1,370 feet where it is swabbing 248 bbls

Caddo County

Magnolia Petroleum Co.'s No. 7 Paw Kune, SW cor. NE NE, Section 10-5n-9w, is pumping 25 bbls. from sand at 2,432-37 feet.

Grady County

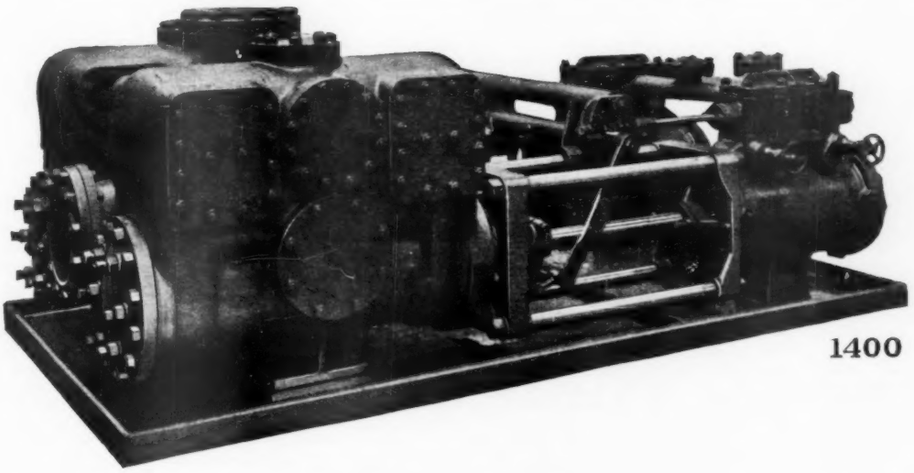
Amerada Petroleum Corp.'s No. 1 Hicks, NW cor. SW SE, Section 16-3n-5w, was completed for an 80-bbl. pumper in sand at 1,712-22 feet. Carter Oil Co.'s No. 2 Gardenhire, SE cor. NW NW, Section 16-3n-5w, is flowing 25 bbls. from sand at 1,743-47 feet. Sinclair Oil & Gas Co. has the rig up for No. 5 Charles, SW cor. SE SE, Section 22-5n-8w Grogan and others' No. 1 Scott, NE cor. Section 34-5n-8w, is being rigged up to deepen. Carter Oil Co. is building the rig for No. 4 Horton, SE cor. Section 8-3n-5w. The rig is also up for No. 1 Horseman, NE cor. SE NW, Section 8-3n-5w. Amerada Petroleum Corp. and W. H. Gant have the rig up for No. 3 Hicks, SE cor. SW SE, Section 16-3n-5w. Gant and others are rigging up the

(Continued on Page 122)

ICE COLD OR RED HOT

The temperature of the fluid pumped is immaterial

Jacob Bigelow, a very learned Doctor, was professor of materia medica at Harvard College. He acknowledged he was selected because he knew more about the worthlessness of drugs than any other living man.



We brought out our line of Block Valve Pumps for about the same reason. We knew the worthlessness of all the existing types of pumps when it came to handling hot tar, or anything hot or thick, or both.

The valves of the Block Valve Pumps are large blocks, and the valve seats are large rectangular openings capable of handling most anything, including gobs or chunks.

The fluid end is so constructed that any part can expand or contract without any detrimental effect. Fluids or semi fluids up to 500° F. can be pumped easily. In fact, one of our shop men reports seeing a Block Valve Pump handling tar so hot that he could see the glow of the fluid end on a dark night. The fluid end was red hot.

NATIONAL TRANSIT
PUMP & MACHINE CO.
OIL CITY, PA.

NEW YORK PHILADELPHIA CLEVELAND PITTSBURGH
DENVER TULSA HOUSTON

Wildcat Gasser in Catahoula Parish

Continued Activity at Pleasant Hills, Saline County. Four Rigs, 17 Contracts, at Amory, Mississippi

By James H. Dameron
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Feb. 21.—Lochnager Oil & Gas Co.'s No. 1 Beasley, NE cor. SE SW, Section 26-9-6e, a rank wildcat in Catahoula Parish, Louisiana, blew out at 3,093 feet the latter part of the week making 20,000,000 feet of gas and a batch of salt water. The water is believed to be coming from an upper water sand and the gas is believed to be coming from the Wilcox sand.

The well is in a low bottom on the banks of the Ouachita River and is several miles southwest of Sicily Island, where several wildcats encountered gas shows higher up. The only topographical high in that country is what is known as Beasleys store, 3 miles south of Harrisonburg. During floods several years ago all of the land for miles around was under water with the exception of the hill on which the store was built. The continued boiling of the water during the flood season prompted a study of the condition there by H. D. Easton, consulting geologist. Upon his recommendation Ferguson and Kimbrough Oil & Gas Co. started a Wilcox sand test, a half mile south and little east of the wildcat gas well. However, the test failed to go to the Wilcox sand and was abandoned at 2,219 feet, in 1925.

The Lochnager Beasley got a gas show at 2,200 feet and 6-inch was set at 2,185 feet. At that depth the well tested 500,000 feet of gas and salt water. Before the well blew in the bit went through some green sandy shale and into rock. The rock was penetrated 1½ feet. The tools were being pulled out of the hole when the well blew in making an estimated flow of 20,000,000 feet of gas and a batch of salt water as well as blowing mud and rocks from the hole. The well blew wild for a little more than an hour and bridged over. Pipe is being taken to the well and a test is to be made.

It is believed the gas is coming from the Wilcox sand which produces a lub oil in the Urania Field. The Wilcox in Urania is found around 1,500 feet. The Lochnager company owns an 8,000-acre block and the well is near the center of the block. Its sensational actions created a new interest in that area and a demand for acreage there.

Pleasant Hill Operations

Pleasant Hill, in Sabine Parish, will have four rigs running by the end of the week. Arkansas Fuel Oil Co. has spudded No. 3, and Nos. 4 and 5 are being rigged. Ohio Oil Co.'s No. 1 Cook, Section 34-10-12, about a mile east of the Arkansas company's No. 1 Logan, is rigged and ready to drill. No. 1 Logan flowed on an average of more than 325 bbls. daily last week and is still flowing close to that figure.

Jack Moffett and associates have made location for No. 1 Moore, NE NE NW, Section 5-10-12, about 1½ miles southwest of the Logan well. The cyclone that took a toll of 11 lives near Pleasant Hill the latter part of the week did not strike the Pleasant Hill Field.

The Rayville, drilling in Richland Parish, is believed to be proving a "string bean" structure. Palmer Corp.'s No. 1 Colvin, Section 33-17-6e, a half mile northeast of the Gulf company's wildcat gas well, checked low and gauged 4,600,000 feet of gas at 2,385 feet. The next 2 feet of formation was red gumbo. A little more than 2 miles to the southwest, Sam D. Hunter's No. 1 Seibert, Section 1-16-5e, tested 100,000 feet of gas at 2,381 feet. Sandy shale was cored at 2,382-85 feet. Gulf company's well blew out at 2,340 feet.

Near Georgetown, where the Gulf Refining Co. has been wildcatting for eight months with only meager encouragement, its No. 3-A L. C. Swope, Section 8-9-1e, blew out at 500 feet making 3,000,000 feet of dry gas. The well bridged after blowing 30 minutes and is to be drilled deeper. It is the first gas encountered in Georgetown drilling.

Arkansas Led Production

Arkansas led the division in new production with five oil wells good for a combined production of 313 bbls.; one gas well and three dry holes. Caddo saved Louisiana from being blanked in new production when a Ferry Lake well was completed flowing 131 bbls. Eight dry holes were recorded in Louisiana during the week and two gas wells were completed.

In the Monroe gas field, a 46,000,000-foot gas well was completed in Ouachita Parish. This well is the largest producer in that wide area. Deep wells in Caddo Parish were the source of interesting field news during the week. Gulf Refining Co.'s No. 12 Tyson, Section 14-21-15, in Pine Island, an old gas well, completed at 3,819 feet and which blew into oil more than a week ago, continues to increase its production. The well started off making 18 bbls. and increased its flow to 140 bbls. daily. At the end of the current week the flow had increased to 167 bbls. of high-gravity oil daily. Dixie Oil Co.'s No. 81 Robertshaw, Section 13-21-15, was bailed in at 3,646 feet and made 35,000,000 feet of dry gas. The well has been shut in and the crew is waiting for orders.

Mississippi Play

The Amory district in Mississippi where a wildcat gas well was drilled last October has four rigs running and it is reported that contracts have been signed for the drilling of 17 more tests. Amory Petroleum Co.'s No. 1 Hall, Section 8-13-17, is drilling at 646 feet with cable tools. Same company's No. 1 Dill, Section 12-13-18, is drilling at 25 feet with rotary tools. Quincy Oil Co.'s No. 1 Darrett, Section 29-13-17, is drilling at 410 feet. Buffalo Oil Co.'s No. 1 Crook, Section 4-13-17, is waiting for cement, to cement 10-inch casing at 379 feet.

Divisional production dropped off 770 bbls. during the week. Louisiana lost 115 bbls. in daily average because of a sharp drop in Urania production and Arkansas decreased 665 bbls.

Production by Fields

Louisiana	
Caddo, light	10,050
Caddo, heavy	4,360
Homer	5,345
Haynesville	8,200
DeSoto and Red River	3,970
Elm Grove	725
Cotton Valley	6,110
Urania	12,240
Total	51,000
Arkansas	
Smackover, heavy	102,115
Smackover, light	12,315
El Dorado	6,050
Lisbon	5,040
Stephens	1,425
Nevada	1,800
Bradley	220
Total	128,965
Total both states	179,965
Total last week	182,234
Decrease	2,269

Caddo Parish

Gulf Refining Co.'s Ferry Lake lease in Caddo came through with the only oil well completed in Louisiana during the week. It was No. 263 Ferry Lake, Section 28-20-16, which is flowing 131 bbls. daily from sand at 2,241 feet. The well is flowing through 2-inch tubing set with a packer. Unity Petroleum Co.'s No. 1 Thigpen & Herold, Section 10-21-16, tested salt water at 2,158 feet and was abandoned.

Bahan & Bahan's No. 2 Wilburn, Section 4-17-16, is a derrick. Bethany Oil & Gas Co.'s No. 1 Offenhauser, Section 1-20-16, is drilling at 920 feet. The liner was set and Big Lake Oil Co.'s No. 1 Rodessa, Section 23-23-16, is being washed to the bottom at 1,524 feet. On the Dixie Oil Co.'s leases in Caddo No. 2 Noel, Section 13-21-15, is drilling lime at 3,144 feet; No. 81 Robertshaw, Section 13-21-15, was bailed in at 3,646 feet and made 35,000,000 feet of dry gas. The well has been shut in for orders. Ten-inch was set at 42 feet and No. 83 Robertshaw, Section 4-21-15, is drilling at 895 feet. No. 10 Slattery, Section 27-21-15, is drilling shell and lime at 3,709 feet.

Gilliam Syndicate's No. 1 Sellington, Section 17-21-14, is being delayed while the bit and one joint of the drill stem is being fished for at 2,449 feet. Ten-inch was cemented at 319 feet and Gulf Refining Co.'s No. 264 Ferry Lake, Section 22-20-16, is drilling at 1,003 feet; 10-inch is being set at 160 feet and No. 265 Ferry Lake, Section 28-20-16. Four and one-half inch casing was cemented at 1,565 feet at Lewis Oil Corp.'s No. 8 C. M. L. C. Co., Section 24-22-15. Ten-inch was set at 40 feet and 6-inch was set at 988 feet at Luby Oil Co.'s No. 14 Caddo Levee Board, Section 23-22-15.

Eight Tests in Operation

On the Magnolia Petroleum Co.'s Caddo leases eight tests are in operation. No. 1 Bell, Section 6-17-16, is waiting for 8-inch to set at 2,587 feet; 6-inch casing is being milled out at 2,183 feet at No. 2 Caddo Levee Board, Section 8-20-15; No. 16 Dillon, Section 24-21-15, fishing at 3,765 feet; No. 16 Doan & Thigpen, Section 6-20-15, is waiting for a standard rig at 1,604 feet; location has been made for No. 17 Doan & Thigpen, 150 feet south and west NE cor. NW, Section 6-20-15; 6-inch casing was cemented at 1,400 feet at No. 13 Herndon, Section 22-21-15; No. 4 Planters, Section 7-21-14, is drilling gummy shale at 1,400 feet and No. 20 Robertshaw, Section 23-21-15, is drilling at 2,308 feet. J. M. Miller's No. 6 Solly, Section 22-21-15, is drilling at 1,200 feet. Owl Oil Co.'s No. 2 Wilburn, Section 4-17-16, is drilling at 850 feet.

A derrick is up for Shreveport Oil Corp.'s No. 1 State, 1,440 feet east and

LAWSON 50,000,000-FOOT GASSER FIRST FREE FROM SALT WATER

By James H. Dameron

EL DORADO, Ark., Feb. 21.—Marine Oil Corp.'s No. 1 Winn, Section 11-18-13, in the Lawson wildcat area, furnished the excitement for the week for Arkansas operators when it was bailed in making 50,000,000 feet of dry gas from sand at 2,709-11 feet. It is the first wildcat in the Lawson area free of salt water and producing from that zone. Several months ago the first wildcat test to create excitement in Lawson blew in making a big volume of gas and a big batch of salt water. All other tests save the Marine company's test fared in the same manner.

Giving color to reports from Lawson was Simms Oil Co.'s No. 1 Ballard, Section 9-18-13, which has 2,000 feet of fluid, 70 per cent salt water, standing in the hole from sand at 2,551-56 feet. The well is being put on the beam.

When the Marine company's well came in it was permitted to blow for about 30 minutes. The well started making sand and was closed in before connections were cut. Marine is drilling the plug on another Lawson wildcat.

In Louisiana, there was little offered in the way of exciting wildcat news during the week. Woodley and Collins' No. 2 L. & A., in the Carterville area of north Bossier Parish, is within a few feet of the Blossom sand and expects to make a test before the close of the week. Blossom sand in previous Carterville tests has showed some oil and gas but the showings have been drowned out by salt water encroachment. Leaking casing seats were blamed for some of the unsuccessful completions in that territory.

Pleasant Hill, in Sabine Parish, is being followed closely as the Arkansas Fuel Oil Co.'s wildcat continues to hold up by flowing on an average of 325 bbls. of high-gravity crude daily. Two tests are expected to be spudded soon. One is an offset to be drilled by the Arkansas company, and the other is a test to the southeast by the Ohio Oil Co. The Arkasans company has a derrick up for its third well and location is being made for the fourth.

In the Dolet Hills area, A. H. Tarver's No. 2-B Matthews, Section 32-12-11, was completed at 2,679 feet making 5,000,000 feet of gas and spraying a little oil. The well is an offset to a producer.

Seven completions were recorded in the wildcat territory, two in Arkansas and five in Louisiana. All save the Tarver well were shallow failures with the exception of a 3,300-foot failure in Claiborne Parish.

Union County

West of El Dorado, Grimes and Jones' No. 1 Williams, Section 8-18-14, is waiting for 6-inch casing cemented at 2,215 feet to set. Cement is being drilled out at 2,651 feet at Marine Oil Co.'s No. 1 Thompson, Section 10-18-13. Marine company's No. 1 Winn, Section 11-18-13, made 50,000,000 feet of dry gas from sand at 2,709-11 feet. The well was allowed to blow for 30 minutes and started making sand and was then closed in. Arrangements are being made to set 8-inch casing at 2,511 feet at Ohio Oil Co.'s No. 1 Crain, Section 1-17-14. Simms Oil Co.'s No. 1 Ballard, Section 9-18-13, has 2,000 feet of fluid in the hole, 70 per cent salt water, from sand at 2,551-56 feet and the well is being put on the beam. The bottom of the hole at 2,984 feet was cemented, and Superior Oil Co.'s No. 1 Cordell, Section 5-18-13, has been temporarily abandoned. A derrick is up for Superior Oil Co.'s No. 1 Jerry, SW cor., Section 32-17-13. Wingfield and associates' No. 1 Morrison, Section 3-19-13, is drilling at 2,919 feet.

Ouachita County

Ten-inch casing was set at 45 feet and 6-inch is being run to 1,390 feet at J. G. Reynolds' No. 1 Chandler estate, Section 3-14-18, 5 miles southwest of Camden.

Ashley County

Rhodes and Kirker's No. 1 Bledsoe, Section 20-15-7, has been temporarily abandoned at 2,554 feet.

Bradley County

Magnolia Petroleum Co.'s No. 1 Arkan-

(Continued on Page 120)

Branded Gasoline *must* be uniform

In these days of branded gasoline, it is imperative that the refiner consistently produce "gas" of standardized quality. The point is well illustrated by the following quotation from the advertising copy of a prominent manufacturer of an "anti-knock" motor fuel.

> "Those familiar with gasoline specifications will note the low initial point, the close range of distillation and the low end-point."

Capitalizing Close Control

> "Our methods of manufacture and our close and accurate control will insure uniformity of the product. We can say to the tourist, 'Your carburetor knows no state line.' "

The reputation of the maker of advertised motor fuel is staked upon the uniformity of his product.

The ability of Brown engineers to develop and apply temperature and pressure control instruments that can be relied upon for consistently positive and accurate performance is helping the oil industry make that promise good.

The Brown Instrument Company

4412 Wayne Avenue Philadelphia, Pa.

Branches in Principal Cities

"To Measure is to Economize"—*Pascal.*

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Pyrometers
Draft Gauges
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CO_2 Meters
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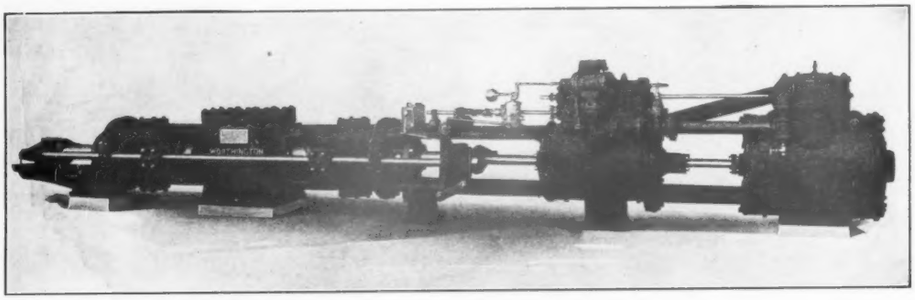
Boiler Water Level Gauges
Liquid Level Gauges
Pressure Gauges
Vacuum Gauges

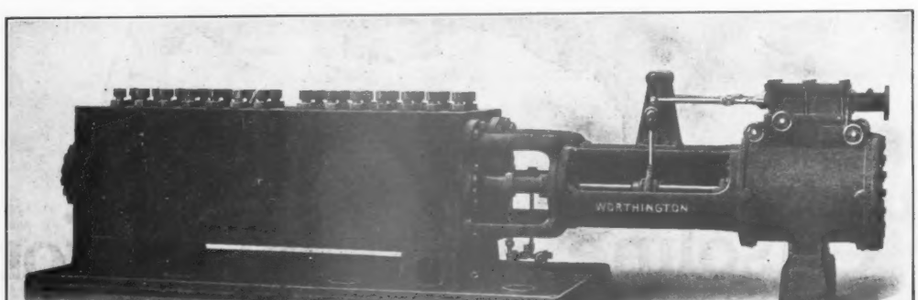
Brown Automatic Control

WORTHINGTON

For the most severe service
WORTHINGTON HOT OIL PUMPS



16"& 24"x 5"x 24"
Single Plunger
Pattern



18"x 8½"x 18"
Duplex Piston
Pattern

16"x 9"x 24"
Single Piston
Pattern

PUMPS
OIL and GAS ENGINES
COMPRESSORS
CONDENSERS
FEEDWATER HEATERS
METERS—
OIL
BOILER-FEED
WATER

Piston and Plunger Patterns
Steam or Power Driven
Single Duplex
Duoplex (*Synchronized Twin Single*)

WORTHINGTON PUMP AND MACHINERY CORPORATION
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510 feet north SW cor. NW Section 28-21-15. Location has been made for Standard Oil Co.'s No. 177 Stiles, 565 feet east and 120 feet south center Section 23-21-16. On The Texas Company's Caddo Parish leases the following wells are in operation: No. 47 C. M. L. Co., Section 23-21-15, is drilling sandy shale at 3,237 feet; No. 2 Glassell, Section 14-20-15, is drilling red shale at 2,872 feet; No. 5 J. F. Herndon, Section 14-21-15, is drilling gray lime at 2,536 feet; No. 3 Hitchinson, Section 15-15-12, is drilling shale at 672 feet; the liner is being set to test at 2,386 feet at No. 58 Harrell, Section 4-21-16. Six-inch casing was cemented at 1,370 feet at Thomason and associates' No. 7 Muslow, Section 31-21-15. West Louisiana Gas Co.'s No. 2 Stringfellow, Section 19-17-16, is drilling at 2,100 feet. Woodley Petroleum Co.'s No. 3 Muslow, Section 32-21-15, is drilling at 1,250 feet.

Bossier Parish

Palmer Corp.'s deep test in the Elm Grove Field, No. 3 Bossier Land & Lumber Co., Section 9-16-11, is drilling shale at 3,542 feet. Four and one-half inch casing was cemented at 1,852 feet at The Texas Company's No. 5 Caplis, Section 24-16-12, an old Elm Grove completion being drilled deeper. A derrick is up for No. 14 Caplis, 2,798 feet north and 619 feet west SE cor. SW, Section 24-16-12.

LaSalle Parish

The plug at 1,530 feet is being drilled at Honeycutt and associates' No. 1 Morrow, Section 35-10-1e. Louisiana Oil Refining Co.'s No. 2-B Tremont, Section 30-10-2e, tested salt water at 1,573 feet and is being plugged back to 1,570 feet. Six-inch was cemented at 1,505 feet at Youngblood and associates' No. 1 Urania, Section 7-10-2e.

Monroe District

Possibly the biggest producer ever drilled in the Monroe gas field and the largest to have been drilled in recent years, was brought in last week by the United Oil & Gas Co. The well, No. 3 Guthrie, Section 50-20-4e, in Ouachita Parish, was good for 46,000,000 feet of gas at 2,143 feet. Standard Oil Co.'s No. 3 Interstate, Section 8-19 Se, a shallow test, was dry and abandoned at 1,726 feet.

Eight-inch casing was cemented at 891 feet at Ouachita Natural Gas Co.'s No. 8 Allison, Section 7-20-5e. Easterling and associates' No. 1 Sicard, Section 18-18-4e, is a rig. Jordan Drilling Co.'s No. 1 Montgomery, Section 13-18-4e, is drilling shale at 1,904 feet. Ladell Oil Properties, Inc., Section 10-19-5e, is drilling at 2,110 feet. Twelve-inch pipe was set at 197 feet at Natural Gas Products Co.'s No. 1 Burton, Section 26-20-4e. C. E Camette's No. 1 Tugurie, Section 21-22-1e, is drilling at 1,051 feet. Clark Creek Oil Co.'s No. 2 Frost Johnson, Section 8-23-1e, is shut down at 2,307 feet. Twelve-inch pipe was set at 184 feet at Ruston Drilling Co.'s No. 1 Gulley, Section 16-20-4e. United Carbon Co.'s No. 1 Raburn, Section 28-21-4e, is drilling at 1,300 feet.

Webster Parish

Magnolia Petroleum Co.'s No. 4-B Turner, Section 21-21-10, in the Cotton Valley Field, was put on the beam at 2,590-93 feet and is pumping salt water. Six and five-eighths inch casing was set at 4,216 feet at Humble Oil & Refining Co.'s No. 5-B Davis, Section 23-21-10. Six-inch casing was cemented at 2,557 feet at Magnolia Petroleum Co.'s No. 4-A Robbins, Section 21-21-10. Magnolia Petroleum Co.'s No. 2-A Robbins, Section 21-21-10, is being rigged. Louisiana Oil & Refining Co.'s No. 1 Davis, Section 23-21-10, is shut down at 3,552 feet for water. Location has been staked for Northwest Louisiana Gas Co.'s No. 1 Coyle, 660 feet south and west NE cor. SE, Section 22-21-10. Woodley Petroleum Co.'s No. 1 Cox, Section 22-21-10, is drilling at 4,000 feet.

Union County

Two good pumpers in the Norphlet area of Smackover led the string of Union County completions during the week. Lion Oil & Refining Co.'s No. 10-A Lawton, Section 10-16-15, is good for 150 bbls. from sand at 2,381-86 feet. Imperial Oil & Gas Co.'s No. 9 Murphy, Section 9-16-15, is a 125-bbl. pumper from sand at 2,759-76 feet. In the east end of Smackover, Humble Oil & Refining Co.'s No. 6 Farris, Section 34-15-15, a 30,000,000-foot gas well at 2,581 feet, was drilled to 2,642 feet and completed as a 6,000,000-foot gasser showing a little salt water. Clark & Greer's No. 1 Le Croy, Section 6-18-15, in the northern part of the El Dorado Field, was completed at 2,185 feet pumping 8 bbls. Lisbon wound up the completion list with two small edge wells in the southwest part of that field. Humble Oil & Refining Co.'s No. 5 Goodwin, Section 20-17-16, is a 15-bbl. pumper at 2,168 to 2,205 feet. Ohio Oil Co.'s No. 1 Patterson Mitchell, Section 20-17-16, was good for 15 bbls. on the pump from sand at 2,154-89 feet

New work in Smackover was confined principally to the deepening of old wells, which, incidentally, constitutes a good portion of the Smackover Field work. Eason and associates' No. 9-A Murphy, Section 15-16-15, tested salt water at 2,613 feet and 4½-inch casing is being cemented at 2,611 feet. W. H. Gilliland's No. 1-B Hodges, Section 1-16-17, is drilling at 750 feet. Gladys Belle Oil Co.'s No. 11 Cook, Section 16-16-15, is being cored at 2,611 feet. The plug at 2,680 feet is being drilled at Hatfield and associates' No. 3 Ennis, Section 23-17-16. Six-inch casing was cemented at 1,941 feet at Hollified and associates' No. 17 Giller, Section 10-16-15. Humble Oil & Refining Co.'s No. 6 Goodwin, Section 20-17-16, is being rigged.

Imperial Oil & Gas Co.'s No. 5 Murphy, Section 9-16-15, completed June 4, 1926, producing 500 bbls. on air from sand at 2,443 feet, is being rigged to deepen. Same company's No. 6 Murphy, Section 9-16-15, is drilling at 2,617 feet. Five-inch casing was cemented at 2,767 feet at E. M. Jones' No. 4 Murphy, Section 17-16-15, which was completed February 11, 1926 at 2,788 feet and making 8,000,000 feet of gas with 335 pounds rock pressure. Keen & Woolf Oil Co.'s No. 4 Murphy, Section 9-16-15, completed January 15, 1926, as a 20,000,000-foot gas well, with 650 pounds rock pressure at 2,178 feet, is being rigged to deepen. Louisiana Oil Refining Corp.'s No. 3-B Murphy, Section 9-16-15, is being rigged to deepen.

On Lion Oil Leases

On the Lion Oil & Refining Co.'s leases: No. 9-A Flenniken, Section 10-16-15, is down 250 feet and 10-inch is being set at that depth; No. 9 Graves, Section 3-16-15, was deepened 15 feet to 2,631 feet and is to be tested at that depth; No 6 Hardy Murphy, Section 9-16-15, is being cored at 2,460 feet and No. 7-D Murphy, Section 8-16-15, is being cored at 2,772 feet. Magnolia Petroleum Co.'s No. 5 Childs, Section 8-16-16, cored salt water sand at 3,058 feet and No. 6 Childs is shut down in red gumbo at 3,000 feet waiting for orders. Magnolia Petroleum Co.'s No. 10 Hatfield, Section 7-16-15, is drilling at 2,570 feet and No. 1 Nicholas Childs, Section 8-16-16, is being reamed to set 8¼-inch casing at 2,586 feet. Arrangements are being made to deepen O. G. Murphy's No. 3 T. C. Murphy, Section 9-16-15, which was completed July 14, 1925, pumping 200 bbls. Same operators' No. 9 T. C. Murphy, Section 9-16-15, is drilling at 2,375 feet.

Natural Gas & Fuel Corp.'s No. 5 Bilyew, Section 9-16-15, has 600 feet of oil in the hole from sand at 2,298 to 2,305 feet and is waiting for a standard rig. The six-inch liner was stuck 21 feet off bottom at Natural Gas & Fuel Corp.'s No. 4 Flenniken, Section 8-16-15, total depth 2,800 feet. The bottom of the hole is being cemented and arrangements are being made to mill casing and sidetrack the liner. Ohio Oil Co.'s No. 7 Murphy, Section 9-16-15, completed July 5, 1925, at 2,409 feet pumping 195 bbls., is being rigged to drill deeper. The bottom of the hole at 2,666 feet is being cemented at Peer Oil Corp.'s No. 1-B Palmer, Section 9-16-15, and arrangements are being made to mill casing and sidetrack the drill stem. Location was made by the Peer Oil Corp. for No. 7-B Palmer, 350 feet south and 150 feet east NW cor. SE SW, Section 9-16-15. The bit and collar is being fished for at 2,265 feet at A. H. Ramage's No. 11-C Lawton, Section 10-16-15. Sun Oil Co.'s No. 20 Hays, Section 3-16-15, is drilling at 1,961 feet. Ten-inch pipe was set at 204 feet and Stewart and associates' No. 7 Murphy, Section 9-16-15, is drilling ahead at 1,600 feet. The Texas Company's No. 5 Saxon, Section 4-16-16, is drilling at 2,599 feet.

Ouachita Parish

H. E. Clark's No. 3 Shirey, CSL NW NW, Section 36-15-17, is a rig. Gulf Refining Co.'s No. 13 Goodwin, Section 32-15-15, is drilling at 2,255 feet. Gulf company's No. 24-A Umsted, Section 33-15-15, is drilling at 2,292 feet. W. R. Keever's No. 2 Hicks, Section 27-15-16, has 150 feet of oil in the hole from sand at 2,015 feet and is waiting for a standard rig. Magnolia Petroleum Co.'s No. 3 E. R. Smith, Section 36-15-17, has 100 feet of oil in the hole from sand at 2,259 feet and is waiting for a standard rig; No. 3 H. Smith, Section 36-15-17, is drilling at 2,000 feet. Middlesex Oil Co.'s No. 4 Shirley, Section 36-15-17, is setting 10-inch at 40 feet. Simms Oil Co.'s No 7 Murphy, Section 28-15-15, is drilling at 2,180 feet. Sunny Jim Oil Co.'s No. 12 Berry, Section 33-15-15, tested salt water at 3,928 feet and is coring at 3,932 feet. A. M. Sutton's No. 2 School House, Section 28-15-16, topped the red beds at 2,890 feet and is shut down for orders at 3,060 feet. Texas Pacific Coal & Oil Co.'s No. 9 Laney, Section 31-15-15, has 12 feet of sand topped at 2,286 feet and 8¼-inch casing is being cemented on top of the sand. In the Stephens Field Wesson and associates' No. 1 Pelican, Section 22-15-19, drilled the 4½-inch plug at 2,060 feet and is drilling ahead at 2,100 feet.

Columbia County

Kentucky-Arkansas Petroleum Co.'s No. 1 Peter Doss, Section 29-19-20, was drilled to 3,300 feet and was dry; casing has been pulled and the test abandoned. Arkansas Fuel Oil Co.'s No. 1 Barge, Section 14-18-22, is drilling at 50 feet. Location has been made by Golquitt & Thomas for No. 1 Duffer, 200 feet south and 360 feet west NE cor. SE SW, Section 23-18-19. Columbia Oil Syndicate's No. 1 Whitehead, Section 14-19-23, is drilling at 1,570 feet. Fifteen and one-half inch casing was set at 150 feet at Mitchell and associates' No. 1 Franks, 300 feet south and west NE cor. NW SW, Section 29-19-22. Eight-inch casing set at 2,145 feet is being bailed at Scott Phillips' No. 2 Davis, Section 6-18-20.

Nevada County

Humble Oil & Refining Co.'s No. 1 Atkins, Section 9-14-21, was dry and abandoned at 1,244 feet. The rig was moved off and Prescott Oil Corp.'s No. 1 Adams, Section 11-12-20, was abandoned at 1,900 feet. Dixie Oil Co.'s No. 1 Atkins, Section 9-14-21, has 1,000 feet of oil in the hole from sand at 1,228-38 feet and is waiting for a standard rig. The hole is clean at Humble Oil & Refining Co.'s No. 4 Bodcaw, Section 9-15-22, and the hole is being reamed to the bottom at 3,595 feet. Martin and associates' No. 1 Haynie, Section 6-14-20, is a rig.

MIDWEST REFINING CO. COMPLETES LEA COUNTY OPERATING AGREEMENTS

By Special Correspondent

ARTESIA, N. Mex., Feb. 19.—The Midwest Refining Co. this week made operating agreements with permittees on 17 permits, comprising approximately 31,000 acres of government leases in Lea County, New Mexico. This acreage, while scattered, is in Townships 19, 20, 21, 22, 23, 24, 25 and 26, Ranges 33, 34, 35, 36 and 37, and fits in with previous purchases, giving the Midwest a commanding position in the southeast trend from the Maljamar producers. This company, the Marland company, and The Texas Company are now the largest owners of acreage in this area.

The latter company is building a road to its location in Section 22-26-37, which is about 2 miles north of the state line. This location is looked on with favor by a number of geologists, who believe they have a good chance to pick up the Winkler County pay, found in the Westbrook well, 12 miles south of the state line. The Texas Company also completed roads to its locations in Section 4-20-34 and Section 34-16-31. A derrick is now being run on the latter location.

In the Maljamar Field, the Skelly pay has apparently been missed in No. 1 of the Prairie Oil & Gas Co., in Section 10-17-31, the bottom of the hole being below 3,650 feet. This came as quite a surprise, as the Skelly well when opened up for a few minutes last week, showed it has the making of a real producer, flowing almost to the crown block.

Next Completion

The next complet on looked for is the Mid-Continent Oil Co.'s No. 1 Woolley-Jones, in Section 21-17-30, which is drilling at 2,725 feet. This well is expected to pick up the Beeson sand within the next 25 feet, the log showing the Section 21 well to be running about 200 feet higher than the Beeson well, 2 miles to the south. In this latter test the sand carried both oil and water, which led geologists to believe the well is located low down on the structure.

No additional pay has been encountered in the Maljamar Oil & Gas Corp.'s No. 1, on the Grace Mitchell permit in Section 5-17-32, with the bottom of the hole 4,050 feet. Drilling has been exceedingly slow as the hole is standing full of oil. It will probably be shot within a few days.

With tubing set, the No. 1 State well of this company, in Section 16-17-32, has been flowing at the rate of 7 bbls. hourly.

The Cap Rock Oil & Gas Co. has started making hole on its No. 1, in Section 11-16-32, it being completely cleaned after three months of fishing and milling up of lost tools. The Inglefield, Bridges' No. 1, in Section 4-17-34, has reached its contract depth of 4,500 feet. A new contract has been signed and the hole will be carried to 4,900 feet.

A 120-foot derrick is being erected on the Tilton, Croft No. 1 location in the C NE. Section 33-11-35, between the towns of Tatum and Cap Rock. It is thought time can be made on the cap rock with rotary tools.

With the major companies continuing to show preference for eastern Eddy and Lea Counties, the independent operators are turning attention to the country west of the Artesia Field, with preference being for blocks of acreage west of the Pecos River. A number of geological structures have been worked out and carefully checked, with the producing horizons looked for at shallow depths. A number of tests will soon be started. One of these is to be started within the next week, being the W. A. Stone Oil Co.'s No. 1 Hnulik, in the SW cor. NW NW, Section 25-17-26, 4 miles southeast of Artesia. The contract calls for a 2,500-foot hole, drilling to the artesian water to be done with rotary tools, and completion to be made with standard equipment.

On the Cottonwood, 6 miles north of Artesia, casing is being set at 800 feet in the Hammond Oil Co.'s No. 1, in the NW SE SW, Section 15-16-25.

According to a late report, the No. 1 Covert well, in Section 15-21-33, has drilled into the salt at 1,740 feet. This test has been drilling for the past year.

Oil operators in the state are interested in the proposed house bill to amend Section 1, 2 and 9, of Chapter 137 of

(Continued on Page 118)

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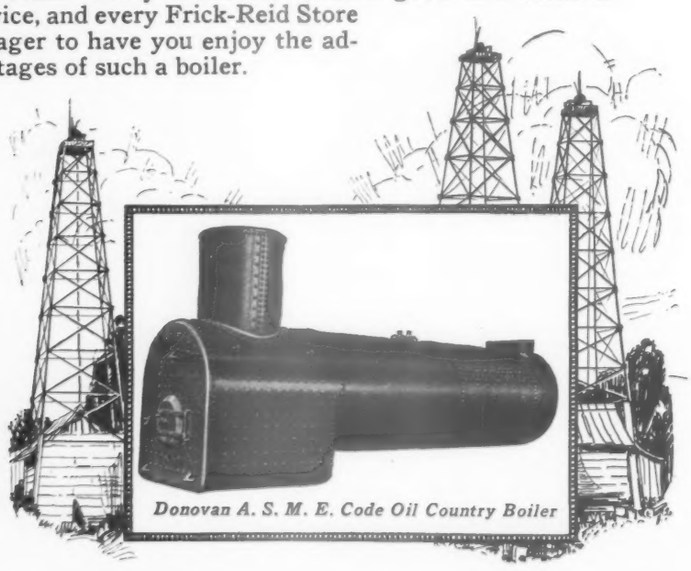

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Remarkable Week in Southwest Texas

Eighteen Producers Completed With Initial Output of 835 Barrels and 231,500,000 Feet of Gas

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Feb. 21.—Eighteen producing wells were completed in the Southwest Texas fields during last week with an initial production of 835 bbls. of oil and 231,500,000 feet of gas. In number of completions and volume of gas it was one of the biggest weeks recorded in the district. The Laredo territory was responsible for 358 bbls. of the oil and 63,500,000 feet of gas and the remainder of the district was responsible for 477 bbls. of oil and 168,000,000 feet of gas.

In addition to the producers there were three wildcat wells abandoned in the San Antonio territory during the week and in the Laredo district there were three wells close in to proven acreage and one pure wildcat that were abandoned.

Laredo District

In the Laredo district in the Randado Pool in Jim Hogg County there were three completions. Grayburg Oil Co. at 1,306 feet got a 100-bbl. well in No. 13 Weil, Block 9, Survey No. 81; Magnolia's No. 14 Merchant State Bank at 1,276 feet, Survey No. 415, is a 50-bbl. well, and J. L. Collins' No. 9 Palacious at 1,246 feet, in Survey No. 291, is a 100-bbl. well.

In the Henne, Winch & Fariss Pool Magnolia's No. 24 Martinez, in Survey 276, at the south end of the field, is a 10,000,000-foot gas well.

In the Bruni tract extension to the Aviator Pool Sun Oil Co.'s No. 12 Bruni is making 180 bbls. of fluid, of which about 60 per cent, or 108 bbls., is oil.

Three gas wells were completed in the Laredo territory, including the Magnolia's well in the Henne, Winch & Fariss Pool. In the Cole Field in Duval County Houston Oil Co.-Tyng completed No. 1 R. Benavides in Block No. 1, Survey No. 15, on the Webb-Duval County line at 1,648 feet, making 50,000,000 feet.

Magnolia Petroleum Co. added another 3,500,000 feet to the gas production by the completion of its No. 3 Cuellar in the southeast corner of Survey No. 245 in Zapata County in wildcat territory, 3 miles east and a little north of the old Jennings gas field, at a depth of 1,340 feet. One of the old Jennings gas wells brought in from a shallow sand many years ago is still producing gas to supply Laredo and has returned to the Border Gas Co., which owns it, approximately $300,000 worth of gas.

Abandonments in the Laredo territory include the abandonment of the No. 1 Garcia of Daughy-Maddox Co. and Harvey in Block 5 of Survey No. 281, in Jim Hogg County, a little north and west of the Alworth discovery well in Survey No. 39, having passed the sand producing in the Alworth well at 1,021 feet. It will back up and shoot at 1,051 feet in a sand that had a showing but was not tested. The first test was made at 1,038 feet and tested a little oil and some water. Magnolia, a little north of the Alworth well, has set and will test at 1,041 feet. These are the first wells drilled since Alworth brought in the discovery well making about 35 bbls. of oil and the same amount of water at 1,020 feet.

Houston Oil Co. abandoned at 1,832 feet its No. 6 Benavides in Duval County, Block No. 1, Survey No. 17, of the Cole Field. The well is a little over a quarter of a mile southeast of the Cin-Tex Petroleum discovery oil well in that field.

Hazlitt-Simmons abandoned the location for No. 2 Barnsley in Survey 268, in the Carolina-Texas Field in Webb County, and Trussell, Cezreaux and Putnam abandoned at 1,467 feet their No. 1 Palacious, in Block 2 of Survey No. 232 in Jim Hogg County, a pure wildcat test south of the Randado Pool.

Elsewhere in Southwest Texas probably the most important completion was the Humble Oil & Refining Co.'s No. 2-A Dennett, which as in the Kingsville Field in Kleberg County and which came in flowing through 2-inch tubing and made 462 bbls. the first 24 hours and 362 the second 24 hours and is being estimated at around 200 bbls. or over when settled. It was completed in sand at 2,235-75 feet and is the best well yet completed in the field. In the same field Kepley Oil Co. completed its No. 1 Jonas Weil in Block No. 12 of Section No. 40, estimated at 8,000,000 feet of gas at 1,400 feet.

Three wells completed in the Refugio gas field in Refugio County added 120,000,000 feet to the gas production of that field. They are all Houston Gulf Gas Co. wells. No. 1 Fox at 2,018 feet and No. 2 Rea at 2,100 feet are each estimated at 45,000,000 feet of gas and No. 2 Fox estate, in Block 5 of Survey 1, is a 30,000,000-foot gas well.

In the Luling Field in Caldwell County the Magnolia completed No. 16 Rios at 2,206 feet, estimated at 75 bbls. initial production, No. 17 Rios, a 75-bbl. well, and No. 22 Marines, in the Hariett Cottle Survey, a 50-bbl. well.

In the Rockdale Field in Milam County Rockdale Development Co. completed No. 2 Lorenz, a 25-bbl. well, and Smith Oil Co. has made a 2-bbl. well out of its No. 1 Loewenstein, previously reported abandoned. Henry Davis completed a 50-bbl. well in his No. 2 Billy Smith.

In Live Oak County the Houston Oil Co., in the Cartwright gas field, completed No. 1 Brown, in the M. Kivlin Survey, a 40,000,000-foot gas well.

Among the abandonments are the Ballard & Underwood No. 2 Lasater, in Brooks County, on the Falfurrias salt dome, a wildcat test at 3,506 feet. However, it may be decided to deepen both this and No. 1, which is shut down at approximately the same depth.

In Milam County Eisenmeyer and others' No. 1 Fowler got a flow of sulphur water at 1,490 feet and is abandoned, and Cypress Creek Drilling Co. has abandoned No. 1 Romberg, in western Travis County, a wildcat, at 1,365 feet.

Lease Transactions

Magnolia Petroleum Co. leased from Rosa Vela de Benavides 2,824 acres in Webb County, southeast of the Carolina-Texas gas field; Gulf Production Co. leased blocks 5, 8, 9 and 10, in Survey 267, on the northwest edge of the gas field; and Roxana Petroleum Co. leased 400 acres out of the Edgington Subdivision of the Puig ranch in the Albercas grant.

Mirando Territory

T. P. Morgan got about 10 bbls. of oil and 100 bbls. or so of water at 2,579 feet in No. 1 de la Garza in Block No. 23 of Section No. 335, in the northwest edge of the gas area of the Carolina-Texas gas field and is drilling deeper. The amount of oil, though small, is of importance, as it is on the northwest edge of the field and the first oil on that side, and is directly across the gas area opposite the Associated-Carson No. D-2-A Webster, in Survey 684, that came in a producing oil well and the only one thus far found in the field.

Miscellaneous

A diamond core rig is expected to reach San Angelo this week and be hauled overland 65 miles south to the Ross ranch in Sutton County, southeast of Sonora, to be used by the National Potash Co. of America to prospect the ranch and a block of 19 sections of land for potash, oil or gas. Some major companies have acreage close in, and this being one of the few diamond core tests in West Texas, the information from the examination of the core is valuable. Samples will be sent to the Bureau of Mines in Washington and to the major companies interested. The operations are being handled under the supervision of Dr. David Flood of San Antonio who is the chief geologist.

Walker-Van Duyn No. 1 Leigh, in Kerr County, at Center Point are setting casing at 1,485 feet and will test. The well has a perceptible showing of gas and slight showing of oil at that depth. It is believed undoubtedly to be in the Pennsylvania, though no fossils have been found thus far. The test is very much wildcat and in a territory on the upper side of the Balcones fault that has not been popular with geologists, but they are all watching it closely for the information. This is the most important showing it has found thus far. It will be tested early this week after setting 8-inch casing.

Cole Gas Field—Duval County

Houston Oil Co.-Tyng's No. 1 R. Benavides, Survey 15, Block 11, located 155 feet to southeast and southwest lines, has a sand at 1,645-48 feet and set casing at 1,641 feet. Houston Oil-Sun Oil Co.'s No. 3 "B" Benavides, Survey 16, Block 2, located 155 feet to northeast and southeast lines, is drilling at 150 feet. Magnolia Petroleum Co. has derrick up for No. 1 Harper, Survey 323, Block 6, located 200 feet to south and east lines. Houston Oil Co. has set casing at 1,820 feet in the No. 6 Benavides, Survey 17, Block 1, located 660 feet to northwest lines and 150 feet to southwest lines, to test sand at 1,832 feet. Cole Petroleum Co.'s No. 23 Benavides, Survey 8, Block 9, located 150 feet to southwest and northwest lines, is drilling at 3,205 feet; No. 28 Benavides, Survey 13, Block 15, located 450 feet to northwest lines and 1,050 feet to northeast lines, is drilling at 4,093 feet; No. 31 Benavides, Survey 15, Block 15, located 450 feet to northeast and southeast lines, is coring for sand at 1,640 feet; No. 32 Benavides, Survey 15, Block 2, located 660 feet to northwest and northeast lines, has spudded in and derrick is up for No. 33 Benavides, Survey 15, Plock 14, located 660 feet to northwest and northeast lines.

Piedras Pintas

Humble Oil & Refining Co.'s No. 1 Becher, Survey 531, located 480 feet to north line and 2,075 feet to west line, is in hard shale and lime at 4,278 feet. Gulf Production Co.'s No. 1 Tinney, Survey 8, located 800 feet to south line and 100 feet to west line, is drilling at 3,620 feet after showing a little gas in the test at 3,613 feet.

O'Hern & Seacord Pool

Associated Oil Co.'s No. 5 Benavides, Mariano grant, Servando Benavides tract,

(Continued on Page 117)

KARNES COUNTY WILDCAT HOPEFUL; SOUTHWEST COAST GETS ATTENTION

By B. D. Stevenson

SAN ANTONIO, Tex., Feb. 21.—Earl B. Reynolds' No. 2 Butler, in Karnes County, forced itself on attention last week, when the gas coming from the well caught fire. It didn't do much damage, but advertised that there was enough gas in the well to catch fire, which was not generally known. The well is 50 miles southeast of San Antonio, and 50 miles inland from the Refugio gas field in Refugio County. It is pure wildcat; and more than that, in a wildcat area that has been given scant consideration. Reynolds started his No. 1 Butler, south of the Southern Pacific tracks and west of the San Antonio River, and about midway between Kenedy and Runge, more than a year and a half ago. It was abandoned at below 3,000, but had some showings, not satisfactorily tested, due to mechanical difficulties; and No. 2 was drilled 1,000 feet south, and for the past three weeks has been swabbing and washing and showing a little cut oil. Gas that had shown up seemed cut off when the bottom of the hole was plugged off, but is now coming back with the nursing the well is being given.

The well is at the contact of the Miocene-Pliocene with the Eocene formation, and starting on the Rio Grande at Rio Grande City is known as the Reynosa escarpment. It extends north through Starr, along the east side of Zapata, across the southeast corner of Webb, northwest corner of Duval, and southeast corner of McMullen, northwest across the center of Live Oak and Karnes, along the northwest line of DeWitt, and through the center of Fayette and Washington. In the northwest part of Duval, and on this line, the Schlesinger well is this week testing at 2,475 feet, with a core that looks good. The Reynolds well is 80 miles northeast of it, and another 125 miles northeast of Reynolds is the Brenham area, in Washington County, where there is a little oil. That line of geology has attracted a great many independent operators in years past. It has not attracted a great many of the major companies, and is not generally in favor with them. More or less gas and a little oil showing around Three Rivers, in Live Oak County, half way between the Schlesinger well and the Reynolds well, helps the situation out a little, and some minor showings of gas and oil in the southeastern part of Gonzales County, northeast from the Reynolds well, still further helps it out a little.

A feature of the wildcatting in Southwest Texas at this time is the study being given to the coast country, forced upon the industry by the development of the Kingsville Field in Kleberg and the gas field at Refugio, in Refugio County, 75 or 80 miles northeast of the Kingsville Field. There are several sands in each of these fields, and operators like territories where there is a chance at more than one sand. These two fields are inland about 20 to 25 miles from the coast line, and the Markham oil field in Matagorda County, 75 miles on northeast from Refugio, is the neartst production in that direction.

In the Refugio-Kingsville territory, there are a number of deals pending, and much research work is being done, with the result that more than likely there will be considerable wildcatting in the course of some months.

Two wildcats in Medina County are this week at the interesting stage. They are on the top of the Edwards lime. Witherspoon's No. 1 Redus, on the eastern edge of the Adams gas field, topped the Edwards at 2,250 feet; and R. R. Lewis' No. 1 Kellar, a little over a mile farther northeast, topped it at 2,258 feet. A few days' drilling will tell whether they open a new field or are failures.

Duval County

Ralston M. Talbott's, Inc., No. 1 Margarite, Survey 4, is drilling at 1,400 feet. Humble Oil & Refining Co.'s No. 11

(Continued on Page 86)

Gulf Coast Output Off 10,655 Barrels

Allen Dome, Brazoria County, Wildcat Getting Attention. Another Series of Tests Planned on Hockley Dome

By P. L. McGreal
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Feb. 21.—A decided slump is noted all around this week in the Gulf Coast Plains region. There is a marked decrease in the daily average production. A total of 31 wells were completed, of which 4 were dry and 3 salt water wells. Seven tests were bailing at the end of the week. New production last week, 17,780 bbls.

Interest in the wildcats is now focused on the Roxana Petroleum Corp.'s No. 1 San Bernard River, Allen Dome, in the southwestern part of Brazoria County. That test is bailing some oil and salt water at 4,236 feet. The oil is 36 gravity, which is unusually high for the Coastal country. The Roxana corporation has two domes in that part of Brazoria County which it is developing. One is known as the Clemen Dome on land which is part of the state farm system of the penitentiary and the other is the Allen Dome. They are about 7 miles distant from each other. Drilling tests followed geophysical explorations. Both domes show sulphur deposits as well as oil sands.

A deal whereby the Humphreys Corp. acquires the joint interest of the Mills Bennett Production Co. at Barber Hill, Chambers County, was another interesting feature of the week. The deal involves $350,000 and gives the Humphreys Corp. some choice looking acreage and production. The Barber Hill Dome is one of the highest in the Coastal region, its elevation being some 80 feet above the surrounding prairie. It is about 12 miles northwest of the Goose Creek Pool. The dome has been the scene of more or less wildcatting for 20 years. The Humphreys Corp. obligates itself to spend $250,000 more in development work.

Hockley Dome Tests

The Hockley Dome, 22 miles northwest of Houston, in Harris County, will be given another series of tests in the near future. The Humble Oil & Refining Co. and the Rycade Petroleum Co. have taken over the leases on the Warren 4,000 acres and will drill a number of wells on the southwest to swing around the dome to the southwest. The Hockley Dome is one of the most extensive saline uplifts in the Coastal country, covering 7 miles from north to south and from 2½ to 3 miles across. The first activities there go back 20 years. Some shallow sand wells have been developed, but the production is small. It is said the owner of the land has been paid approximately $750,000 in bonuses since the first well was drilled. Practically all the major companies have bought leases and drilled there at one time or another, only to surrender the leases and quit. In this way work would be suspended for several years at a time. The Texas Company did the last work there about two years ago, drilling four deep tests. Since the deal for the Warren ranch land was closed the other companies have been buying protection acreage.

Estimated Daily Average Production

The estimated daily average production for the week ending February 19, is 153,605 bbls., divided by pools as follows: Compared with last week it is a decrease of 10,165 bbls., the largest decline in five months.

Pool —	Gross Bbls.
Boling	2,100
Batson	1,650
Blue Ridge	2,040
Barber Hill	500
Big Creek	2,455
Dayton	65
Damon Mound	1,025
Edgerly, (La.)	875
Goose Creek	7,800
Humble	3,800
Hull	17,010
High Island	775
Jennings, (La.)	960
Lockport	2,900
Markham	500
Nash Dome	560
Orange	5,275
Orchard	50
Pierce Junction	6,750
Piedras Pintas	200
Spindletop	68,000
Saratoga	1,230
Sour Lake	5,075
South Liberty-South Dayton	4,160
Vinton, (La.)	5,700
West Columbia	10,075
Welsh-Anse La Bute, (La.)	75
*Miscellaneous	2,000
Total	153,605

*Includes Nacogdoches, Washington and Kleberg Counties in Coastal Texas, and Cameron, Calcasieu and Iberia Parishes in Coastal Louisiana.

Southwest Fields

The estimated daily average gross for the Southwest Fields is 38,470 bbls., a decrease of 490 bbls. compared with last week. The estimate for each field is as follows:

Field—	Gross Bbls.
Luling	18,200
Mirando	15,100
Somerset	1,700
Callihan	40
Rockdale-Minerva	980
Lockhart, (Lytton Springs)	2,450
Total	38,470
Grand total for week	192,075
Grand total last week	202,730
Net decrease	10,655

Wells Completed

Outside of the deep sands at Spindletop, the best completion was the Rio Bravo Oil Co.'s No. 5 Settegast, on the northwest flank at Pierce Junction flowing 1,100 bbls. initially at 3,625 feet, 25 gravity. Screen is being set in No. 3 at 3,850 feet. W. F. Martin & Co.'s No. 1 Settegast is a gas well at 3,510 feet, registering 1,000 pounds pressure.

Another nice well was the Empire Gas & Fuel Co.'s No. 23 Barngrover, in the Hull Pool, which came in flowing 1,075 bbls. at 3,190 feet. The Gulf Production Co.'s No. 1 Stengler was deepened to 3,200 feet and responded flowing 600 bbls. Its No. 23 Morris-Phillips is bailing at 3,300 feet. No. 81 Phoenix is setting screen at 3,225 feet, and No. 82 Phoenix will pump at 2,900 feet. The Republic Production Co.'s No. 10 Dolbear was worked over into a 125-bbl. well, 10 per cent water, at 2,280 feet. Cannon & Davies' No. 1 Crosbie will pump at 1,100 feet. The Mecom Oil Co.'s No. 1 Seale is bailing at 3,410 feet.

In the Blue Ridge Pool, the Gulf company's No. 8-B Blakely is pumping 65 bbls. at 3,550 feet and No. 14-C Blakely, 75 bbls. at 3,175 feet. James Abercrombie & Co.'s No. 6 West-Schenck is a 75-bbl. well at 3,850 feet.

The Sun Oil Co. abandoned No. 11 Lockhart at High Island at 2,150 feet.

The Cotton Oil Co.'s No. 5 Kirby, in the Saratoga Pool, is a salt water well at 1,175 feet.

The Ada Bell Oil Co.'s No. 114 Texas, at Batson, is making 75 bbls. at 1,050 feet.

On the southwest deep sand area at Sour Lake, the Orange Petroleum Co.'s No. 3 Merchant is bailing at 4,075 feet. The Texas Company quit No. 304 fee in salt water at 4,200 feet. The Minor Oil Co.'s No. 80 fee, in the old pool, is a 10-bbl. pumper at 1,026 feet.

In the Goose Creek Pool, the Gulf Production Co.'s No. 26 Smith is a pumping proposition at 3,600 feet. The Gulf Coast Oil Co.'s No. 11 Galliard sanded after screen had been set at 2,490 feet.

Pumping wells were the rule in the Orange Pool. The Rex Petroleum Co.'s No. 12 Carbello will pump at 3,175 feet, as will the Orange Petroleum Co.'s No. 8 Chesson at 3,725 feet, and the Gulf Coast Oil Co.'s No. 5 Leon at 3,150 feet. The Humble Oil & Refining Co.'s No. 6 Winifree will be a pumper. No. 2 Winifree is making 125 bbls. of fluid, 65 per cent salt water at 3,530 feet. The Rycade Petroleum Co.'s No. 2-A Cow Bayou is good for 100 bbls. at 3,530 feet.

The Texhoma Oil Co.'s No. 13 Chesson, a deep hole, was abandoned in salt water at 5,625 feet.

On the west side of the Trinity River in the South Liberty-Dayton district, the Gulf Production Co.'s No. 1 Archer is heading 600 bbls. at 3,700 feet. Its No. 1 Marshall is pumping 60 bbls. at 3,750 feet. No. 1 Riviere is bailing at 3,700 feet.

The Bennett Production-Humphreys Corp.'s joint No. 2-B Kirby, on the northeast flank at Barber Hill, was deepened to 4,166 feet and came back flowing 300 bbls., 21.5 gravity oil.

The Rycade Petroleum Co.'s No. 4 Kountz, at Markham, in Matagorda County, is swabbing 200 bbls. at 3,508 feet with 45 feet of screen set. No. 3 Kountz is in 8 feet of sand at 3,274 feet showing oil and gas.

The Standard Oil Co. of Louisiana abandoned No. 5 Industrial Lumber Co., Stark Dome, Calcasieu Parish, Louisiana, in rock salt at 2,415 feet.

South Liberty

On the west side extension, in South Liberty, the Gulf Production Co.'s No. 1 Marshall is a 60-bbl. pumper at 3,750 feet. No. 1 Archer is making 600 bbls. at 3,700 feet. Screen is being set in No. 1 Riviere at 3,700 feet.

No. 1 Palmer is drilling at 4,355 feet. No. 1 Bingle is at 565 feet. The Humble Oil & Refining Co.'s No. 7 Welder is at 2,475 feet. The Associated Oil Co.'s No. 1 Hirsch-Conley is rigging. On the east side of the river in the old pool, The Texas Company's No. 4 Simms will be drilled deeper. It has made a location for No. 7 Staiti.

Saratoga

Locations have been made for Skinner Oil Co.'s No. 2 Brooks; Sun Oil Co.'s No. 173 T. C., and Rainbow Oil Co.'s No. 1 Cotton in the Saratoga Pool.

Pierce Junction

The Rio Bravo Oil Co.'s No. 3-A Settegast, at Pierce Junction on the northwest flank of the dome, is drilling below 3,500 feet. No. 3 Bender is rigging, and No. 4 Bender is drilling at 2,765 feet. The Gulf Production Co.'s No. 2 Jones fee is rigging. Locations have been made for Smith and others' No. 1 Parsons, J. W. Sanders' No. 1 fee, Navarro Oil Co.'s No. 2 Humble, Marland Oil Co.'s No. 4 Prudential, Humphreys Corp.'s No. 2 Liggett, Eunice and Carpenter's No. 2 Bullock-Nash and Long and others' No. 1, Lot 24, B. B. B. C. Subdivision. M. Kouri is rigging No. 2 Jones, having abandoned No. 1 Jones last week as a bad fishing job. On the east side of the dome, the Navarro Oil Co.'s No. 3 Cain will be drilled deeper. The Texas Exploration Co.'s No. 10 Dooley is at 3,435 feet. The Gulf Production Co.'s No. 20 Taylor is drilling at 3,354 feet. H. R. Cullen's No. 8 Howe is drilling around 765 feet.

Big Creek

The Gulf Production Co.'s No. 37 T. W. Davis is drilling in the Big Creek Pool in Fort Bend County, at 3,700 feet. No. 38 T. W. Davis is at 3,455 feet. No. 39 is around 2,000 feet. No. 1 J. H P. Davis is drilling at 1,975 feet. The Texas Company's No. 3 fee is at 2,780 feet.

High Island

Gulf Production Co.'s No. 3-A Smith, on the south side of the High Island Dome, is at 3,000 feet. No. 7 Smith is around 1,900 feet. The Sun Oil Co.'s No. 9-C Cade is at 1,980 feet. No. 11 Cade is fishing at 3,455 feet. A location has been made for No. 12 Cade.

Batson

The Gulf Production Co.'s No. 2 Cruse, on the southwest side of production at

(Continued on Page 121)

SPINDLETOP DECLINES 4,000 BBLS.; INTEREST MOVES TO NEW AREAS

By P. L. McGreal

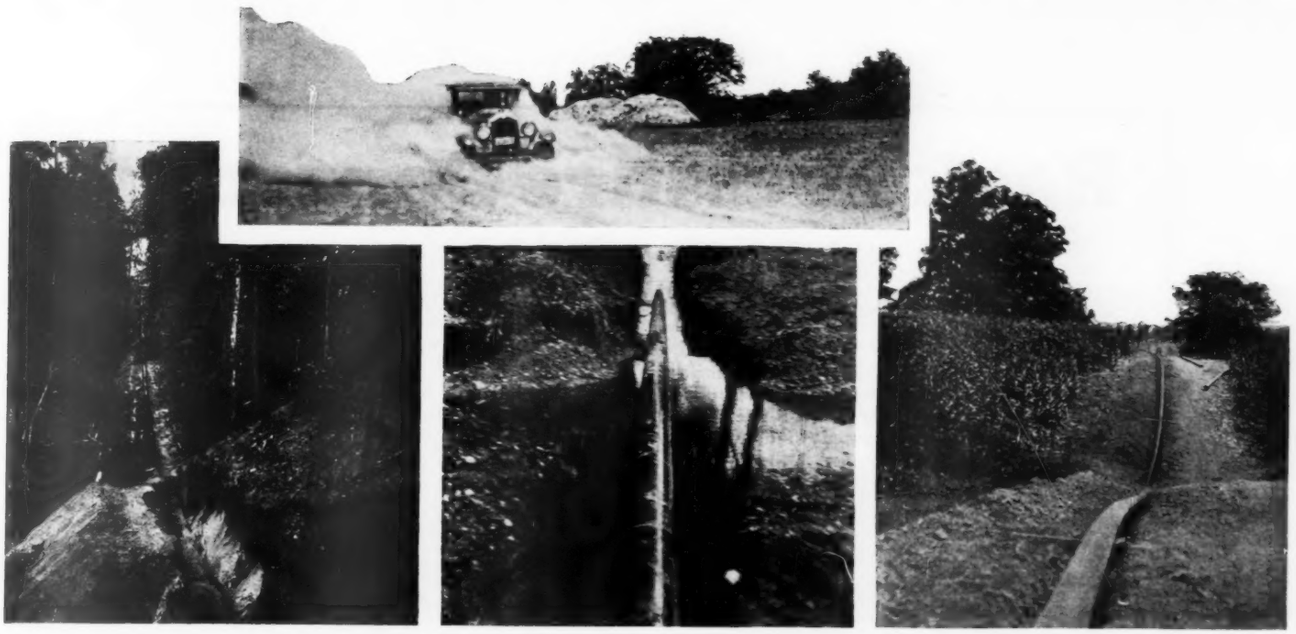
BEAUMONT, Tex., Feb. 21.—The deep sand section slumped 4,000 bbls. per day during the week, the daily average being 68,000 bbls. compared with 72,000 bbls. for the week of February 12. No completions of importance were made during this week. The Yount Lee Oil Co.'s No. 20 Gladys was finished at 2,900 feet and started flowing 3,500 bbls. initial output. It showed salt water at 3,100 feet and plugged back. The Gulf Production Co.'s No. 6 Mann is flowing 1,100 bbls., 25 per cent water, at 3,250 feet. Rush and Pittman will abandon No. 1 Hammond at 3,675 feet.

Each week witnesses a decrease in the number of wells drilling in the deep sand section on the southwest side of the old Cap Rock Pool, but the Yount Lee Oil Co. still has a vast acreage on the south and swinging around to the southeast side to be developed. Much of this has been tested and is considered good, but the development work will be slow since no offset wells will be necessary.

Interest now is focused on the Rio Bravo Oil Co.'s No. 101 T. & N. O., north of the present deep sand production, and also in the Magnolia Petroleum Co.'s No. 2 on its tank farm acreage, just a few locations south of production. The latter is said to be looking better, drilling around 5,100 feet. The Gulf Production Co.'s No. 9 Oakwood, a location from the Walker Oil Co.'s No. 1 Quinn to the southwest, is drilling below 3,300 feet.

Status of Drilling Wells

The Atlantic Oil Producing Co.'s No. 1 McLean will be deepened from 4,360 feet. Nos. 5, 10 and 11 are shut down with a derrick up for No. 16. The Deep Sand Oil Co.'s No. 1 Rush is drilling about 3,495 feet. The Hines Oil Co.'s No. 1 Parker is at 3,600 feet, and No. 2 Gordon around 4,150 feet. No. 2 Gordon is a derrick. The Sun Oil Co.'s No. 2 McLean is deepening at 4,100 feet, as is No. 4 at 4,675 feet. No. 3 is idle at 5,650 feet. The Rio Bravo Oil Co.'s No. 55 T. & N. O. is at 2,975 feet. No. 58 is below 1,100 feet. No. 101, north of production, is around 2,600 feet. The Turnbow Oil Co.'s No. 1 Weed is at 5,000 feet. No. 1 Banks is shut down at 3,090 feet. The Walker Oil Co.'s No. 1 Quinn is shut down at 5,475 feet, with derricks up for No. 2 Quinn, No. 1 Weed and No. 2 Weed. The Gulf Production Co.'s No. 12 A. Weed is at 4,675 feet. No. 9 Oakwood is below 3,300 feet. No. 2 Jack and Duff is deepening at 4,800 feet. No. 8 Roche will drill deeper from 4,150 feet. A location has been made for No. 223 Gladys, in the cap rock section.



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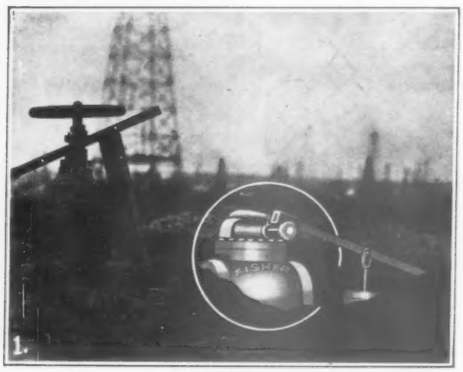

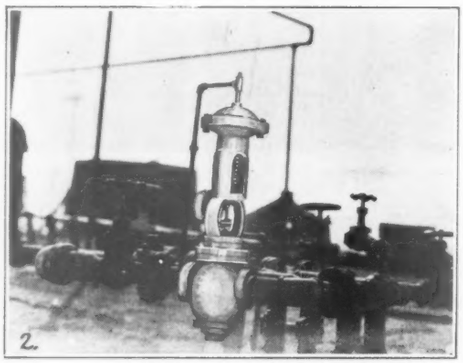

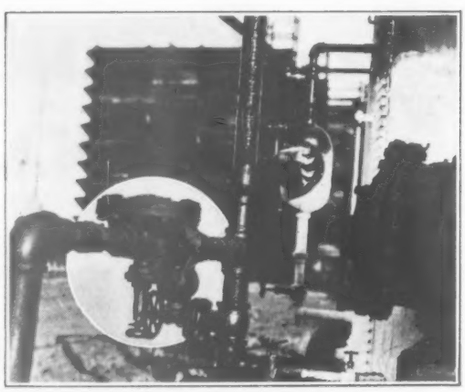

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Colorado Field Getting Attention

Four Mile Area, Thought Extension of Florence, to Be Thoroughly Tested. Southeast Colorado Activity

By F. B. Taylor
Staff Correspondent, Rocky Mountain Area

CASPER, Wyo., Feb. 19.—The newly opened Four Mile Field, near Canon City, Colo., is attracting wide attention. This operation is generally considered an extension of the Florence Field, which has been producing oil for many years. The Florence Field is a shale operation, and the new Four Mile Field is of the same status, the oil from Four Mile appearing to be identical with the Florence crude. The new extension lies to the west of the old field, and it is considered that the intervening territory will be found oil bearing. The Continental Oil Co. has completed two wells in the shale at about 1,200 feet, one on the Steinmier farm, in Section 35-18-70, and the other on the Hall lease, in Section 34. Another well, located on the county poor farm, struck a good showing at 1,400 feet, and will be given a test. No official figures have been made public on the production of these wells, and reports have run as high as 200 bbls. to the well; the Florence wells average about 25 bbls. settled production, and it is probable that the Four Mile wells will produce about the same amount. There are 9 or 10 rig up in the field, and the new pool will be thoroughly tested. The Continental has produced sufficient oil fro mthe two discovery wells to permit a shipment of two tank cars to the Florence refinery this week.

It has long been the contention of geologists that a sand pool, feeding the Florence shale field, would some day be discovered; there are, however, no more signs of sand production in the Four Mile district than in the Florence Field proper. The first showing of oil in the new field was found last year, when a 5-bbl. pumper was completed by the Fox interests of Florence on Section 35-18-70, the well having been started by the Gate City Oil Co. two years ago.

Fort Collins Field

The Union Oil Co. of California is drilling in its No. 2 Blounck, in the Fort Collins Field. This well is expected to make a commercial producer. The Union's No. 1 Krause flowed substantially last Sunday, and is now being tested.

The Texas Production Co. had bad luck in the Moffat Field, in Colorado, this week. No. 1 Pohlman found the Dakota sand at 4,147 feet, and reported 2,700 feet of water in the hole. This well is now being plugged back to a shale stratum which showed oil, and will be tested at that depth. On Section 35-5-91, in the same field, the Texas Production Co. picked up the Dakota at 3,917 feet in its No. 9 Knowlton, and has 2,500 feet of water in the hole, but no oil.

The Continental Oil Co.'s discovery well, in the Walden district in northern Colorado, has been renamed No. 1 Sherman. There is now in storage several thousand barrels of oil from this well, and pipeline shipments will begin the end of this week. The 4-inch pipeline to the railroad has been completed, the pipe having been laid on the surface. Ditch is now being dug to bury this line. A loading rack, with a capacity of nine cars, has been completed at the railroad terminus. The oil will be shipped by rail to the Continental refinery at Glenrock, Wyo., this being more convenient and economical than shipping to the Florence, Colo., plant. Two new rigs are completed and ready to spud: No. 1 Pollock, on Section 2-9-79, and No. 1 Peterson, on Section 1-9-79.

The Denver Chamber of Commerce has been notified by Senator Phipps that prospects for favorable action by the Senate, on a proposed appropriation of $75,000 for the continuance of experiments in shale-oil extraction in Colorado, is practically assured.

Interesting test wells in Colorado are the Five Square Oil Co.'s well on the Berthoud Dome, which struck a showing of green oil in the shale; and the Essok Oil Co.'s well on the Parallel Dome, near Boulder, which reported a gas flow of small volume at 900 feet.

On the Tow Creek structure, the Texas Production Co.'s No. 1 Irwin-Carstorphen swabbed 250 bbls. in 15 hours, while a later test of the same kind showed an even better production. The well is expected to make 350 bbls., the oil coming from the shale above the Frontier sand. The well will be produced from its present depth, and another well will be drilled to test the sand.

North of Ramsey Well

The excitement occasioned by the strike in the Ramsey well, in Cimarron County, Oklahoma, is still running high in southeastern Colorado. Las Animas, Otero and Bacca Counties are practically all under lease, the Marland Oil Co. alone holding 200,000 acres in that district. While Trinidad, many miles north of the Ramsey well, and La Junta, also far to the north, are experiencing something of a "boom," Springfield is the center of the excitement. The town is crowded, both offices and living quarters are at a premium, and the Marland Oil Co. has leased the leading hotel to house its men. At the Pueblo Land Office, applicants for Government permits wait in line to make their filings, and the thousands of acres of State land in southeastern Colorado are entirely under lease.

Operations in Utah

The Utah Southern-Utah Oil Refining's well on the Shafer permit, Cane Creek Dome, in Utah, drilled by the Midwest Exploration Co., is being cleaned out at 4,850 feet. Some wire line has been drilled up, and it is thought that some of the lost tools are lodged at this depth, the hole being tightly bridged. The well is still making both oil and gas.

The Utah Petroleum Co. struck 500,000 feet of wet gas in a test well drilling on the Gibson Dome, in Utah. The gas was encountered at 1,380 feet, and the flow forced its way through a stand of salt water in the hole. The water, which was found at 1,320 feet, will be cased off, and the gas used for fuel. This is considered a very encouraging indication for production on the Gibson Dome. The Empire Gas & Fuel Co.'s well on the same dome has straightened hole, and is making progress again.

The Crystal Carbon Co. is completing a carbon black plant in the Cisco gas field in Utah. The Crystal company contracted the gas from the Utah Oil Refining Co.'s two wells in the field, and afterward drilled two more holes. A fifth well is being started. The new plant, which will operate 38 units, will be ready for opening in a few weeks.

Denver papers have carried a rumor to the effect that a contract exists between the Producers & Refiners Corp. and the Public Service Co. of Colorado, under the terms of which gas from the P. & R. holdings in the Amarillo Field will be piped to Denver for distribution under the new 20-year franchise granted to the Public Service Co. It is known that the Doherty interests, which control the Public Service Co., made a survey of a proposed right of way from Amarillo to Denver last year.

Good Well in Salt Creek

The Midwest Refining Co. completed a good well in the Lakota sand in Salt Creek the past week. The well is known as 1-L on Midwest Oil Co.'s holdings in Section 26-40-79, and initial production is given at 3,795 bbls., natural flow. A Lakota well on the NE of the same section, came in a 25-bbl. pumper, an exceptionally small well for the Lakota sand. A second sand well on Wyoming Associated acreage in Section 14-40-79 was shot and put on the pump, making 107 bbls.

The Carter Oil Co. encountered water in its test on the Horse Creek structure, west of Cheyenne. The well is located on Section 35-17-70. Showings of oil were picked up in this well, and it was considered a promising wildcat. The hole will be plugged and abandoned.

The Dutton Creek well of the Midwest Refining Co., in the southern part of Wyoming, has now been on the pump for several weeks, and is showing up better than was expected. At last report, the well was making 100 bbls. of liquid daily, probably 90 bbls. of which was oil, and the remainder water. Well is located on Section 1-18-70.

The Elkhorn Oil Co.'s well in the La Barge district, in the southwestern part of the State, has resumed drilling. Before the shutdown a month or more ago, this well encountered showings of oil above the sand. After work was resumed, the bit penetrated a sand that showed a little gas. It is now thought to be drilling in the Frontier. There will be a great deal of activity in this region in the spring; it is reported that the Rainbow Oil Co. of Los Angeles will drill six wells in the La Barge Field. The Shidler Syndicate has spudded in on a well on Section 33-27-113, a short distance west of the California Petroleum Corp.'s wells on the former Beneficial acreage. The Syndicate also has acreage in Section 28 of the same township.

The Ohio Oil Co. reports a showing of black oil at 3,350 feet in its No. 3 Sonners, in the Oregon Basin Field, 12 miles south of Cody, Wyo. The Ohio has been prospecting in this region for several years, and has developed gas production in one or two wells. Reports from Cody indicate that the oil showing, which is thought to be in the Embar sand, may prove to be of commercial volume.

The Ohio Oil Co.'s test on the Corley Dome, near Thermopolis, encountered water in the second Frontier sand at 1,202 feet. The well is now drilling below 1,400 feet, with a hole nearly full of water. The well is located on Section 3-43-93.

The Union Oil Co. of California is drilling on its North Sunshine Basin test in Park County. This well is located some distance north of the South Sunshine well of the Union, which came in last fall good for several hundred barrels. It is reported from Thermopolis that the Union Oil Co.'s discovery well on the Lake Creek Dome, in Hot Springs County, will be shot and tested soon, and that development work in this area will be resumed early in the spring.

Montana Operations

The Montana oil producing districts have suffered from another cold wave and a heavy snow, and there is little activity at this time. It is the general opinion, however, that the field will come in for big play in the spring, as field

(Continued on Page 129)

ROYALITE WELL IN TURNER VALLEY INCREASES OUTPUT IN JANUARY

By Victor Lauriston

CHATHAM, Ontario, Feb. 19.—In the Turner Valley Field, southwest of Calgary, Royalite Oil Co.'s No. 4 will, it is reported, show a considerable increase in production for January over the figures for December. During December the well averaged 594 bbls. a day. Exact figures are not available, but it is stated the production in January has fluctuated between 450 and 700 bbls., with indications of a considerable increase in the aggregate. The company has two separators handling the wet gas output of 19,000,000 feet a day, a third separator being held in reserve.

New McDougall-Segur Oil Co., LSD 14, Section 12-20-3w5, in the Dakota formation at 2,595 feet, has installed a pump and is making a 30-day test of the production at this horizon. Bailing tests indicated a flush production of 90 bbls. a day, and the incomplete pumping test looks as though the production is holding up. If the well runs 50 bbls. a day or better it will be finished at this level; if not, it will be drilled deeper. The production is a light green crude, testing 55 3.

Illinois-Alberta Oil & Refining Co., LSD 14, Section 12-20-3w5, is reported maintaining a production of 120 to 125 bbls. a day of crude naphtha from the Madison limestone. Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, is making about 150 bbls. a day. Both are being fitted with safety valves to handle a heavier back pressure. Vulcan Oils' No. 2, same section, is reported working on derrick. Spooner Oils' No. 1, LSD 4, Section 13-20-3w5, is down 2,500 feet and drilling. Spooner Oils' No. 2, Section 24-20-3w5, has started rigging up.

Royalite Oil Co.'s No. 7, LSD 3, Section 13-20-3w5, has spudded in and is reported at 85 feet and drilling. This is a test offsetting the Illinois-Alberta deep producer. Royalite No. 6, LSD 16, Section 31-19-2w5, has finished cementing the 6¼-inch casing at 3,132 feet, and will resume drilling as soon as the cement hardens.

Great West Oils, southeast quarter of Section 7-20-2w5, is at 5,370 feet, and trying to loosen the bit stuck in the casing at 3,000 feet.

Gas Flow Increased

McLeod Oil Co.'s No. 2, LSD 16, Section 1-20-3w5, is at 3,800 feet and drilling, with a wet gas flow estimated between 3,000,000 and 4,000,000 feet a day, being an increase of about 1,500,000 feet a day. The drill is now 12 feet below the depth at which the big wet gas flow of 17,000,000 feet a day was first encountered. It is believed that the original flow came up through a fissure which may have been plugged as a result of the shot, or that the main flow is shut off by freezing. For the deep work the drillers are using a 3-inch bit flattened out to 5 inches with extra wide channels, to handle any sudden rush of gas.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18-20-2w5, is being cleaned out preparatory to cementing below the 6¼-inch casing. The 4½-inch has been removed. Dalhousie No. 5, LSD 16, Section 30-19-2w5, is at 3,256 feet and resuming drilling after running the 10½-inch cas-

(Continued on Page 117)

Storm Slows California Operations

Wildcat Operations Extended in Potrero District. Leasing Activity in Alamitos Heights Area

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Feb. 19.—The torrential rains of the past several days have slowed up development work in California fields to a large extent and as a result the completion of several new wells is being retarded until conditions improve. Wildcatters have been especially hard hit, although losses and suspension of work have not been confined to prospectors alone. Something like 40 rigs were blown over up in the Midway-Sunset area while the overflowing of a flood control channel in the Seal Beach Field threatened for a time to result in considerable loss to operators in that district, which is for the most part below sea level. The levees thrown up by the Marland several months ago held fast, however, and averted what might have resulted in extensive damage and an indefinite suspension of drilling. Work was temporarily suspended on several wells in the Ventura Avenue Field but with the storm over drilling is being resumed. The Union Oil Co. lost about 70,000 bbls. of light oil at Richfield during the storm when a turbulent stream undermined the foundations of an 80,000-bbl. steel tank and, while some oil might be salvaged, a large part escaped the hastily thrown up dam.

Potrero Wildcats

Wildcat operations and extension work in proven fields continued to hold the almost undivided interest of California operators during the past week principally because of the fact that developments expected to materialize in the immediate future might change the entire outlook for the rest of the year. The outstanding wildcat area at present is of course at Potrero, or Cypress, as it has sometimes been designated in the past, where 12 rigs have already been erected and some 15 or 20 additional locations staked notwithstanding not a single barrel of oil has yet been produced. The Julian Petroleum's No. 1 Smith, down 4,500 feet, has not picked up the sand expected to be encountered around 4,400 feet, although a few colors were noted at the latter point, but in spite of this rather unfavorable condition there has not been any letup in the amount of new work undertaken or projected by other operators. This company is preserving the utmost secrecy regarding the cores taken from this well and even the drilling crew is not aware of the formation or exact status of the hole. The well has been cored almost solid during the past 100 feet but instead of following the usual procedure of opening up the core barrel on the derrick floor, it is removed to a more secluded place where it is minutely diagnosed, tested and studied by the company's geological staff.

The Julian Petroleum's No. 1 Smith is approximately 1,500 feet southeast of the Associated's wildcat which picked up a reported but untested sand several months ago and the failure of the former to find a comparable sand has led to considerable speculation as to existing conditions. Some are inclined to believe the Julian well is off structure while others are of the opinion the Associated has just picked up only a little stringer or teaser. I am inclined to believe the latter supposition is incorrect as Joseph Jensen, chief geologist of the Associated, to use a current slang expression, knows his onions and would not entertain any hopes if the outlook was not promising. No one, of course, is absolutely sure of the existence of a field until it has produced oil but the coring of a well-saturated oil sand, if of sufficient thickness, in 9 cases out of 10 means a new field. It is possible the sand found by the Associated is an upper zone and that the Julian's wildcat is outside the limits of this sand but may be in a position later to make a bid for production in the lower horizon. Should this prove true it may be another 30 days before anything definite is ascertained as to the potentiality of this area.

It is generally conceded that the utmost care should be used in developing this district as it has all the earmarks of a treacherous field and might prove a costly gamble to those who enter it with a view of getting production over a large area. It is expected to be rather narrow and operators might find to their sorrow they have another Rosecrans where only a few large companies can ever expect to get out of the red. The Associated's position at Potrero corresponds somewhat to that occupied by the Union and Barnsdall at Rosecrans in that these companies can operate in an economical manner and will not be obliged to engage in town lot drilling. And so another week has closed with the possibilities of the Potrero area still undetermined. This should be California's next oil field but then it is still anybody's guess. It is reliably reported that the Julian's test is running about 250 feet deeper stratigraphically than the Associated's wildcat, which, if correct, would indicate that the major part of the potential acreage at Potrero lies to the northwest. Should this prove true town lot development would be alleviated to some extent as these lots and adjoining acreage are quite closely held by the Associated, Julian Petroleum and others.

Alamitos Heights

Alamitos Heights, west of the Seal Beach Field, has been the livest area in California from a leasing standpoint ever since the Pan American reported the existence of a promising oil sand in its No. 1 Naples two weeks or so ago. This extension well, which is about a mile west and a little north of the Marland's discovery, No. 2 Bixby, is standing cemented but is scheduled to be drilled out and given a test some time during the week. It is needless to say the outcome will be watched with interest for if commercial production is secured the field will be considerably extended and this may result in an early initiation of town lot drilling. The Pan American, by the way, has just ordered a derrick for No. 2 Naples and material will be on ground shortly. The Alamitos Heights section, lying within the corporate limits of the city of Long Beach, is still restricted against drilling but the City Council recently instructed the city attorney to prepare a suitable ordinance for submission to that body for consideration.

It is the present intention of the City Council to immediately open up that section for work but since that body has the whip hand it is in a position to demand some rather high concessions, the most important of which will no doubt deal with sanitary conditions in as much as the municipal officials will not tolerate another situation similar to that existing in the northwest extension of the old Long Beach Field. To take care of this condition at Alamitos Heights it has been suggested that the city demand an initial building fee of $500 for each rig erected. This is rather high but it should keep out some of the shoestring operators who have proven a detriment to the industry and precluded orderly development. As a further move to avoid a duplication of the distressing conditions existing in the northwest extension of the Long Beach Field the City Council will enact suitable legislation to guarantee continuous drilling. It has been suggested that the ordinance now being prepared contain a specific performance clause prohibiting the erection of a rig unless it is to be utilized immediately and drilling work carried to a successful conclusion. In other words, operators will not be allowed to drill a few hundred feet and then suspend operations. If the hole does not result in commercial production it is to be abandoned immediately and all drilling equipment removed. The ordinance will also designate the minimum number of men to be employed and will allow a maximum period of 15 days for successful cementing operations.

Drastic Regulations

The failure of a well to produce an average of 40 bbls. of oil or 10,000 feet of gas daily over a 60-day period will be

(Continued on Page 89)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, Well and Location—	S-T-R	Depth	Status
Smith Pet. Co., No. 1 Johnson, Hawthorne	17- 3-14	5,750	sd. drilling
General Pet., No. 1 Smith, Potrero	35- 2-14	Rig	wait. devel.
General Pet., No. 1 Guiberson, Potrero	35- 2-14	Mtl.	building rig
Julian Pet., No. 1 Smith, Potrero	35- 2-14	4,500	coring
Julian Pet., No. 1 DeKoch, Potrero	35- 2-14	Rig	rigging up
Associated, No. 1 Cypress, Potrero	34- 2-14	4,450	cmtd. oil sand
Getty, Geo. F., No. 1 Cypress, Potrero	35- 2-14	Rig	wait. devel.
Getty, Geo. F., No. 2 Cypress, Potrero	34- 2-14	Rig	wait. devel.
Getty, Paul, No. 1 Cypress, Potrero	35- 2-14	Rig	rigging up
California Pet., No. 1 Cypress, Potrero	35- 2-14	Mtl.	building rig
Cole, Fred E., No. 1 Cypress, Potrero	35- 2-14	Mtl.	building rig
Dill Oil Co., No. 1 Cypress, Potrero	35- 2-14	Rig	rigging up
Walker, Fred, No. 1 Cypress, Potrero	35- 2-14	Mtl.	building rig
Dominguez Extension, No. 1 Compton, Dominguez	22- 3-13	4,670	drilling out
Circle Oil Co., No. 1 Pomeroy, Manchester	22- 3-14	3,358	suspended
Cardiff Oil Co., No. 1 Oceanside, San Diego	24-13- 4	2,070	hd. sd. drilling
Petroleum Sec., No. 1 Sesnon, San Fernando	14- 2-16	5,904	hd. sd. drilling
Standard, No. 1 University, San Fernando	15- 2-15	5,450	sd. sh. drilling
Standard, No. 1 Austin, Topango	11- 1-17	2,210	gr. sd. drilling
Oceanside Oil Co., No. 1 Pacific, San Diego	23-11- 5	3,210	suspended
Sou. Calif. Drlg. Co., No. 1 Matteson, El Segundo	1- 3-15	4,400	suspended
Petroleum Sec., No. 1 Weston, El Segundo	27- 4-14	.....	location
Calif. Pet. Dev., No. 1 Snitz, Capistrano	2- 8- 8	4,000	sd. sh. drilling
Petroleum Sec., No. 1 DeBaker, Bandini	18- 2-12	4,950	br. sh. drilling
Union, No. 1 Moser, Athens	12- 3-14	4,990	sh. sd. drilling
General Pet., No. 1 Lomita, Sunset Beach	19- 5-11	4,151	hd. sd. drilling
Johnson, Geo. W., No. 1 Wickham, Los Angeles Co.	32- 5-17	2,797	drilling out
Pitzer, C. R., No. 1 El Segundo, Los Angeles Co.	12- 3-15	2,300	suspended
Clearwater Pet., Well No. 1, Los Angeles Co.	16- 3-12	1,450	suspended
Green, H. M., No. 1 Structure Hole, Los Angeles Co.	27- 1-13	1,400	rigging up
Ackers, C. F., No. 1 Downey, Los Angeles Co.	10- 3-12	340	set pipe

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Associated, No. 1 Smith, Kettleman Hills	12-23-18	2,043	resume drill.
Bolsa Chica, Well No. 1, Kettleman Hills	30-23-19	2,365	suspended
General Pet., No. 1 Burbank, Kettleman Hills	30-23-19	2,501	bl. sh. drilling
C. C. M. O., No. 1 McGlashan, Kettleman Hills	17-24-19	Rig	rigging up
South Coalinga, Well No. 1, Kettleman Hills	35-24-19	2,015	bl. sh. drilling
Ahlburg Gas Co., Well No. 1 Kettleman Hills	7-23-23	Rig	rigging up
Milham Expltn., No. 1 Kettleman, Kings Co.	2-22-17	Mtl.	building rig
Shell, No. 2 Berlywood, Moorpark	32- 3-20	1,250	hd. sd. drilling
California Pet., No. 1 Camarillo, Ventura Co.	.....	230	sd. drilling
C. C. M. O., No. 1 Hobson, Ventura Co.	22- 3-24	5,855	sidetracking
C. C. M. O., No. 1-B Hobson, Ventura Co.	16- 3-24	730	set pipe
Milham Expltn., No. 1 Sexton, Ventura Co.	19- 3-22	7,100	fishing
Standard, No. 1 Camarillo, Ventura Co.	29- 2-20	4,940	hd. sd. drilling
Standard, No. 1 Montalvo, Ventura Co.	17- 2-22	3,700	set pipe
Petroleum Sec., No. 1 Diablo, Ventura Co.	4- 4-18	1,320	hd. sd. drilling
Miley Expltn., No. 2-A Casitas, Ventura Co.	7- 3-25	515	set pipe
Rio Grande, No. 1 Canet, Ventura Co.	9- 3-23	3,850	sd. sh. drilling
Parkford, E. A., No. 1 Strathern, Ventura Co.	5- 2-18	2,098	sd. drilling
Star Petroleum, No. 1 Canet, Ventura Co.	18- 3-23	3,200	fishing
Richfield, No. 1 Janes, Ventura Co.	16- 5-18	1,640	sd. drilling
Richfield, No. 27, Piru, Ventura Co.	35- 5-18	1,480	circulating
Superior, No. 1 Pena, Ventura Co.	18- 4-17	2,501	br. sd. drilling
Milham Expltn., No. 2 Buttonwillow, Kern Co.	8-28-23	2,361	cemented
Gale, H. S., (Gulf), No. 1 Bakersfield, Kern Co.	6-30-28	2,450	sd. sh. drilling
C. C. M. O., No. 1 Quinn, Delano	23-25-27	Mtl.	building rig
Union, No. 1 Gill, Famosa	8-28-27	3,281	gr. sd. drilling
Union, No. 1 Colm., Kern Co.	24-28-20	710	slight show
Associated, No. 2 Huron, Fresno County	20-19-17	2,315	bl. sh. drilling
Marland, No. 1 Jacalitos, Fresno Co.	22-21-15	2,970	sd. sh. drilling
Petroleum Sec., No. 1 Aniotz, Monterey Co.	2-22- 9	1,502	hd. sd. drilling
Miley Expltn., No. 1 Goleta, Santa Barbara Co.	3- 4-29	2,560	sd. sh. drilling
Miley Expltn., No. 2 Goleta, Santa Barbara Co.	3- 4-29	1,325	oil show
Miley Expltn., No. 3 Goleta, Santa Barbara Co.	3- 4-29	251	sd. drilling
Ozena, No. 1 Allensworth, Tulare Co.	26-24-24	1,765	bl. sh. drilling
Walklin Pet., Well No. 1, Tulare Co.	35-24-24	925	sd. drilling
Walklin Pet., No. 1 Emerick, San Luis Obispo Co.	53-27-10	2,455	redrilling
Richfield, No. 1 Wreden, San Luis Obispo Co.	10-29-17	Mtl.	building rig
Shell, No. 1 Cowell, San Mateo Co.	16- 5- 5	685	sd. drilling
Shell, No. 1 Murphy, Petaluma	29- 5- 6	4,100	hd. sd. drilling

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	210,634	70,090	.....	.....	682,069	1,798,304
Fuel oil	.....	.....	84,888	12,127	994,563	676,694
Diesel and gas oil	.....	.....	.....	.....	411,575	163,938
Gasoline	257,378	36,768	.....	.....	1,067,020	637,495
Tops	.....	.....	.....	.....	.....	149,906
Coastwise—						
Crude oil	447,126	63,875	547,147	78,164	3,256,479	2,389,796
Fuel oil	224,393	32,056	402,539	57,505	1,679,729	897,435
Diesel and gas oil	13,639	1,948	.....	.....	13,639	49,763
Gasoline	104,549	14,936	126,434	18,062	988,490	803,523
Kerosene	.....	.....	4,781	683	23,568	4,864
Tops	.....	.....	.....	.....	.....	29,876
Exports—						
Crude oil	109,850	15,693	161,176	23,025	394,752	264,590
Fuel oil	606,381	86,626	387,771	55,396	2,904,142	1,621,765
Diesel and gas oil	1,514	216	.....	.....	63,827	11,585
Gasoline	106,012	15,145	.....	.....	314,497	598,715
Kerosene	86,408	12,344	.....	.....	281,669	366,866
TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS						
Diesel and gas oil	.....	.....	96,087	13,727	96,087	218,036
Gasoline	.....	.....	.....	.....	172,907	170,098
Lubricants	.....	.....	.....	.....	58,110	52,025
Coastwise—						
Fuel oil	168,591	24,084	77,418	11,060	545,740	778,223
Diesel and gas oil	.....	.....	.....	.....	134,308	.....
Gasoline	67,533	9,648	39,923	5,703	483,440	463,582
Kerosene	.....	.....	.....	.....	6,166	53,215
Exports—						
Fuel oil	73,854	10,551	.....	.....	147,661	315,036
Gasoline	27,471	3,924	132,409	18,916	259,354	156,306
Kerosene	5,309	758	64,178	9,167	130,267	332,588
Lubricants	.....	.....	9,130	1,303	9,120	9,093

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Keystone Pipe & Supply Company	Butler, Pa.
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Ambrose Pool Wells, Shot, Do 250 Bbls.

Another 100-Bbl. Completion in Ohio County, Kentucky, and Two 50-Bbl. Wells in Magoffin County

By Wh't
Staff Correspondent, Kentucky-Tennessee

HARTFORD, Ky., Feb. 19.—The two wells reported last week in the Ambrose Pool, several miles north of Hartford, in Ohio County, each doing 250 bbls.; another, near the Bartley-Ellis Pool, to the northeast, in the same county, good for 100 bbls.; two 50-bbl. wells, in the southeastern part of Magoffin County and a showing of oil in a wildcat well in the northern part of Bracken County, near Bridgeville, and just south of the Ohio River, were the features of Kentucky, Tennessee is also to be reckoned with by a wildcat on the Moore farm, in the Spring Creek area of Putnam County, reported showing for 50 bbls. initial from the Upper Sunnybrook sand, and a test on the James Arms farm, in the Peterman Bend territory of Clay County, across on the west side of the Cumberland River, drilled 150 feet below the Pencil Cave, the hole filling to the top, indicating at least a 35-bbl. producer. Just as soon as the high waters recede in both Kentucky and Tennessee and the roads get passable, there should be an active drilling campaign, not alone with defined limits of production, but in a wildcat order as well.

Week's Work

A summary of the week's work in the Kentucky-Tennessee Fields show 27 completions, 24 producers with an initial production of 973 bbls., and 3 dry holes, no gas wells being reported. When compared with the previous week there were 12 more completions, 11 more producers, 697 bbls. more new production and 1 more dry hole. The wells were distributed by counties and districts as follows:

County—	Oil Comp.	Wells	Prod.	Dry
Barren	10	8	83	2
Ohio	5	5	640	0
Warren	4	3	23	1
Johnson-Magoffin	2	2	110	0
Cumberland	1	1	25	0
Bracken	1	1	5	0
Daviess	1	1	2	0
Kentucky	25	22	888	3
Tennessee, Clay County	1	1	35	0
Tennessee, Putnam Co.	1	1	50	0
Total	27	24	973	3
Last week	15	13	276	2
Difference	12	11	697	1

Mississippi

F. N. Henderson, Aberdeen, Miss., writes some interesting news from Mississippi and Alabama, which indicates that both states are bound to get more or less test work during the present year:

"With the arrival at Aberdeen, Miss., this week of several oil operators from the Ohio and Kentucky fields comes the announcement of five additional tests to be made in this district in Monroe, Lee, Itawamba and Lowndes Counties. In two instances the derrick timbers have been ordered but the exact locations are withheld on account of incomplete blocks of acreage.

"The Barret test to be drilled by the Quincy Oil Co. was spudded in on February 6, the well being located 1,035 feet from the north line and 1,000 feet from the east line in the northwest quarter of Section 29-13-17, Monroe County.

"T. L. Driscoll, who secured franchises in Amory and Aberdeen, has left for Indianapolis, Ind., where he has purchased the pipe for fuel lines to those two towns which he will furnish with natural gas.

"P. J. McAlphin, Parkersburg, W. Va., contractor, completed a derrick on the Clark land in the southeast quarter of Section 29-11-14, Marion County, Alabama. This location is 20 miles east of the Carter gasser in Monroe County, Mississippi; 30 miles south of the Attwood, Franklin County, Alabama, well which has been showing oil and gas, and 30 miles northeast of the old Fayette County, Alabama, gas field. Drilling will start at once.

"Contractor J. M. Langston unloaded a complete drilling rig in Webster County, Mississippi, where he will start a test for Barney Baize, 7 miles west of Cumberland."

Tennessee

In advance of the Peterman Bend Field in Clay County, Tennessee, and across the river from production, Clark, Handon & Munson's test on the James Arms farm was drilled to 150 feet below the Pencil Cave formation, the well filling up to the top of the casing, which is estimated as a 35-bbl. producer. This means that both sides of the Cumberland River look very interesting to those on the ground. Several other wells are nearing the sand in various parts of Clay, Fentress and Pickett Counties, as well as in Putnam County.

In the latter county the people still insist that the venture made by George H. Clark on the Moore farm, in the Spring Creek area, and 8 miles northeast of Cookeville, will make a 50-bbl. producer when put on the pump.

Eastern Division

The most interesting news from the eastern division of Kentucky was the announcement that Carrol & Gray, oil contractors, with headquarters at Bowling Green, Ky., have struck a showing of oil on the Elmer Osborne farm, near Bridgeville, Bracken County, at a depth of 700 feet. As soon as the oil was found drilling ceased, and no reports could be had of the well other than the contractors said they believed they had developed a well that will make a commercial producer. This test is just south of the Ohio and just south of Brown County, Ohio, not far removed from the river town of Augusta and in the northeastern portion of Bracken County. It is not known whether the find was made in what is known as the Clinton limestone, the big gas and oil-producing formation of the Central Ohio Field. It will be an incentive for further development work in that part of the county. Some years ago Pankhurst, a well-known operator of Fostoria, Ohio, since deceased, drilled a well south of Peebles, in Adams County, which adjoins Brown County on the east, getting about a 3-bbl. well in the Clinton formation, to the northeast from the recently drilled wildcat venture on the Kentucky side of the Ohio River.

In District 31, near Ivyton, in the eastern part of Magoffin County, Hupp, Duff, Chiles and others' No. 5 on the B. F. Whitt No. 2 farm, showed an initial of 50 bbls. No. 6 of the same parties on the B. F. Whitt No. 1 farm, same area, showed but 10 bbls., while No. 7 is credited with an initial of 50 bbls. The two Whitt farms have proved among the rich spots in the county, and better weather will see some active field work done. Very little work is being done at this time in any part of the eastern division.

Western Division

The bringing in of some large producers in the Ohio County area of the western division brings that county into the limelight as one of the best-looking drilling propositions in Kentucky. The mud and water has delayed work to a large extent in this field, but drying up of the roads will mean a hustling development. The big finds were made in the Ambrose Pool, several miles north of Hartford, in Ohio County, opened some time ago by the Ohio Oil Co., one of the late entries in the field. The entire southern portion of Ohio County is held under lease and Muhlenburg and Butler Counties are in line for more test work. Work in Daviess and Hancock Counties is lagging, as more attention is attracted to Ohio County.

Ohio County Gushers

James C. Ellis, a recent entry to the oil industry, is meeting with most phenomenal success in his picking of oil leases. After completing three excellent wells on the John R. Weller 110 acres, in Ohio County, it was thought that he was about due for one that would not produce, but his No. 4, located 125 feet from the north line and midway or about 1,000 feet from the east and west lines of the farm, put in 613 feet of casing, topped sand at 618 feet and bottom of sand 653 feet, then drilled to a total depth of 662 feet, where the well was given a 120-quart shot, bringing an initial 24 hours production of 250 bbls., being the largest well, or one of the largest, yet found in Ohio County. Adjoining the Weller farm on the north and an offset to the big No. 4 producer of J. C. Ellis, the Creek Drilling Co.'s No. 2 on the Ambrose heirs 14 acres, and 125 feet from the south line and 1,000 feet from the east line of the farm, cased at 582 feet, struck top of sand at 580 feet and bottom at 638 feet, where it was given a 140-quart shot, and showed a production of 250 bbls. the first 24 hours. This would mean that a couple of locations each side of each well should prove productive as there is 1,000 feet from each well to the east line of each piece of property and the same distance to the west line of both properties. No. 5 Weller and No. 3 Ambrose heirs farms will start as soon as machinery can be moved to the locations. No. 3 on the Ambrose heirs has already started drilling.

The other good producer for Ohio County was to the northeast about 8 or 10 miles from the two large wells and is the Leeper Oil Co.'s No. 4 on the J. S. Colyer farm, near the Bartley and Joe Bob Ellis leases, near Ellis Station, which put in 500 feet of casing, struck top of Jett sand at 512 feet and bottom at 536 feet, then drilled 19 feet to a total depth of 553 feet, where it was given a 50-quart shot, the first 24 hours production being 50 bbls. No. 5 same farm, is under way, and with this well and the recent good well in No. 1 on the Roby farm, in Daviess County, Clarence A. Leeper, an old-time Pennsylvanian, is setting pretty.

In the Swope Pool of Ohio County, the Chicago Petroleum Syndicate's No. 12 on the Guenther-Gant 134-acre farm, set a string of 752 feet of casing in the hole, struck top of sand at 761 feet and bottom at 778 feet, total depth of hole 791 feet, and the first 24 hours production amounted to 25 bbls., which is from the Barlow sand.

Several miles east and southeast of the line of production in Ohio County, Loman and Bolling's second well on the C. Harrison farm, south of Aetnaville, between Deanfield and Reynolds, struck a 15-bbl. producer in the Barlow sand at a total depth of 702 feet. A string of 674 feet of casing was set in this well. Top of sand was struck at 678 feet and bottom of sand at 692 feet and drilled to a total depth of 702 feet and given a 60-quart shot.

In the same county, the Wood Oil Co.

(Continued on Page 114)

FLOOD AND MUD IN CENTRAL WEST; BUT SEVEN WELLS WERE COMPLETED

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Feb. 21.—With extreme high water and much mud there were but seven completed wells reported from the entire Central West Field. Two were in the old Lima Field of northwestern Ohio and five were scattered over the Indiana regions, while Illino's and Central Ohio failed to report any completions. This is the smallest number of completions reported for some years, but conditions are such little can be accomplished and operators feel it is not worth while to attempt much work until settled weather comes.

Operators are more than anxious to keep busy with the drill to bolster up their production or hold it to normal, for even the small strippers show slight declines from time to time and new wells must be drilled to defray the expense of getting the oil into the tanks. The wildcatter is the one who feels the effect of bad weather, for had conditions been good for operating during the past month or so many wildcat ventures would have been started and possibly new producing areas opened by this time that would show the trade which way to go in future work. There are many likely spots yet untested over the Central West Field in central and northwestern Ohio, Indiana and Illinois, and it will be years before these fields are drained of their product. While millions of barrels of oil have been taken from the three states there are millions yet to be brought to the surface as only small portions of each state have been tested. Redrilling of old abandoned territory, especially where the oil is found in the Trenton Rock, will be one of active development during the summer, as it is known that deeper pays are found in this well-known formation, as deep as 500 feet in this limestone rock.

L'ma Field

Only two completions were reported from the Lima Field of northwestern Ohio during the week, both being small pumpers. Near North Baltimore, in Henry Township, Wood County, Mays & Bushey's test in the northwest corner of the Mays-Bushey farm, in the northwest quarter of Section 35, struck top of Trenton at 1,143 feet and went 282 feet in the sand to a total depth of 1,425 feet, getting a small pumper rated good for about 5 bbls. In Liberty Township, same county, Man Stockwell's No. 6 well, 300 feet from the south line and 700 feet from the east line of the Frank Stratton farm, in the southeast quarter of Section 10, topped the sand at 1,212 feet and went 300 feet in the sand to a total depth of 1,512 feet, the well being reported good for 2 bbls.

To get good results from deep in the Trenton one must naturally get on or near the crest of a structure such as the "Sucker Rod Belt" or "Hog's Back" that runs through parts of Hancock, Wood and Lucas Counties, which in the earlier days was the main artery of the gas production in the early days of development. While much oil has been found at shallower depths in the Trenton in the synclines, the chances are not very good for finding of a deeper pay in the Trenton, although some nice deep sand wells have been found in Sandusky

(Continued on Page 112)

Boys Abroad Hollering For W-K-M Swabs

Exceptionally long life of special rubbers, and remarkable results achieved with W-K-M Swabs, has created a world-wide demand for them.

THE boys abroad are certainly hollering for W-K-M Swabs, and no mistake about it.

A lot of them haven't been home since the first W-K-M Swab was introduced about six months ago, and consequently haven't seen one, but they are requisitioning them every day, and in constantly increasing quantities.

Three days ago, for instance, the mail brought us orders for six swabs of various sizes for export. The following day, orders for three more. Yesterday, no orders. But this morning, however, an inquiry is in for price and delivery date on 30 (thirty) W-K-M Swabs, in all sizes from 2-inch tubing swabs to 8¼-inch casing swabs. And so it goes.

Probably the fact that W-K-M Swabs are equipped with special rubbers, some of which have withstood as many as 300 hours of constant swabbing, has something to do with this increasing demand from the boys abroad. Good news spreads fast, you know.

It is possible, too, that the swivel feature of the W-K-M Swab, which saves much of the wear on wire lines; or the internal expansion feature; or the automatic unloading feature; or the quick rubber change feature; or all of them combined, is influencing the style in swabs abroad this year.

But whatever it is, W-K-M Company welcomes the business and guarantees to all the boys, wherever they may be, that W-K-M Swabs will continue to measure up to the same high standards of quality that characterize all W-K-M products.

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Those old-time masters of sailing fleets, who refused to equip with steam, watched their proud clippers losing trade, losing money and finally –powerless–saw them swept from the seven seas

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Universal Oil Products Company
Owner of the Dubbs Process
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Chicago, Illinois

Most Completions in Southeast Ohio

Well Flowing 150 Bbls. Initial Found in Elizabeth Sand Near Wilmerding, Allegheny County, Pa.

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Feb. 21.—Fewer wells were completed during the week than for any like period in more than a year. The few that came in were no better than light producers and not much above the average size. In several districts there is a good deal of new work starting, and while it is located in defined territory, operators have been holding these farms for long periods and paid rental on them. Now they are giving them a test and if they are not productive the leases will be surrendered. Operators have given much thought as to how they can conduct the business in the most economical way and by surrendering unproductive territory can reduce expenses.

Wildcatters would be willing to take chances if they knew where to drill with a chance to find a profitable producer. If a new pool is discovered before the close of the year it is almost certain to be of small dimensions and much money and labor will be expended in making the discovery. The few who get in first will make a winning, and owing to the congested nature of the pool those who come later will have to take a loss. That but few win has been many times demonstrated in the past decade. The small but rich little pool in Morris Township, Greene County, is a good illustration.

Best Producers for the Week

The very few better-than-average wells completed during the week are in the deep sand territory in southeast Ohio. In the northeast quarter of Section 19, Reading Township, Perry County, the Planet Oil Co. and others completed and shot in the Clinton sand No. 6 on the S. B. Dittoe 81 acres. The first 24 hours after shot it produced 75 bbls. and has a gas pressure, estimated at 400,000 feet. In Harrison Township, same county, in the northwest quarter of Section 28, Walsmith and others drilled a little deeper their test on the William Goff farm. It was drilled in about three months ago but on account of developing a heavy gas pressure, drilling was suspended. When it was drilled a little deeper the result was a 20 or 25-bbl. producer.

The Pure Oil Co., got a fair producer when it completed and shot in the Clinton sand its test on the L. A. Laslie farm, in the southwest quarter of Section 18, Green Township, Hocking County. With these three exceptions, the southeast Ohio Fields made a poor showing.

West Virginia and southwest Pennsylvania were out of the running during the past week, neither completing anything better than light pumpers and gassers. In Henry district, Clay County, West Virginia, there is considerable activity and Morris Township, Greene County, is fairly active, but the pool has been defined.

In the southeast quarter of Section 30, Washington Township, Belmont County, Ohio, the Natural Gas Co. of West Virginia has completed No. 5 on the J. F. Bumgardner farm, a natural producer, good for 8 bbls. a day in the Berea grit.

West Virginia

In Clay district, Monongalia County, the Carnegie Natural Gas Co.'s tests, on the J. Wilson and S. J. Johnson farms, are gassers in the Bayard sand. In Clay district, Wetzel County, the Wetzel Gas Co. has a gasser in the salt sand at a second test on the S. E. Longstreth farm.

In Carroll district, Lincoln County, C. C. Wolfe has a gasser in the Berea grit at his test on the M. K. Sammel heirs' farm. In Grant district, Cabell County, the Aetna Oil & Gas Co.'s test, on the Margaret C. Moore farm, is a gasser in the Big Injun sand. In the same district, the Monickel Oil & Gas Co., after a prolonged fishing job at 1,525 feet on the Collins farm, has abandoned the hole and skidded the rig.

In Coal district, Harrison County, the Clarksburg Light & Heat Co. has a gasser in the 30-foot sand on the S. D. Gore heirs' farm. In New Milton district, Doddridge County, J. E. Travis completed a duster at a test on the M. O. Polan farm. It has been abandoned. In the same district, the Columbia Carbon Co.'s second test, on the Lewis Maxwell farm, is a gasser in the Big Injun sand.

On Falling Rock Creek, Big Sandy district, Kanawha County, the Walker Oil Co. has completed No. 59 on the Goshorn heirs' farm, a very light pumper.

In Clay district, Monongalia County, the Carnegie Natural Gas Co. has completed its second test on the S. J. Johnson farm. It is good for 3 bbls. a day in the Big Injun sand.

In Meade district, Tyler County, Sutton Brothers, have a duster at their test on the A. G. Smith farm. In Troy district, Gilmer County, the Hope Construction & Refining Co. drilled its test on the H. I. Allman farm through the fifth sand. It is a duster and has been abandoned.

Clay County

In Henry district, Clay County, the South Penn Oil Co. has completed in the Big Injun sand No. 51 on the O. D. Stockly farm, estimated good for 35 bbls. a day. In the same district, the Virginian Gasoline & Oil Co. completed in the same formation No. 5 on the Brown, Swan, Goshorn & Odell tract, not good for more than 5 bbls. a day.

The South Penn Oil Co. completed in the Berea grit No. 21 on the Susan Grant farm, in Walker district, Wood County. It is a duster. In the same district, the Richard Oil Co. is drilling at 1,850 feet on the Phillip Kirch farm. The Hope Construction & Refining Co. has the rig completed for a test on the Roberts heirs' farm.

In Union district, Tyler County, Sutton Brothers have completed in the Keener sand a test on the M. E. Church lot. It is a gasser, good for between 3,000,000 and 4,000,000 feet. In Murphy district, Ritchie County, the Hope Natural Gas Co.'s test on the Tibbles heirs' farm is a gasser in the Big Injun sand. In Grant district, Loomis & Co. have a light gasser in the same formation at a test on the McGregor heirs' farm.

In Sherman district, Calhoun County, the Hope Natural Gas Co.'s second test, on the C. M. James farm, is a gasser in the Big Injun sand. The Columbia Gas & Electric Co.'s test, on the J. B. Johnson farm, is a light gasser in the Berea grit.

Drilling and Starting Tests

In Union district, Tyler County, Knowlton and others are rigging up on the T. F. Williamson farm. In New Milton district, Doddridge County, George Trainer is due in the sand on the W. F. Kidner farm. In McClelland district, the Manufacturers Light & Heat Co. has a rig up on the G. W. and A. Farr farm.

In Liberty district, Marshall County, the Manufacturers Light & Heat Co. has a rig up on the R. A. and J. S. Marple farm. In Center district, Wetzel County, the Carnegie Natural Gas Co. is building the rig to drill deeper No. 2 on the Rufus Long farm.

In Battelle district, Monongalia County, the Randall Gas Co. has started to drill on the John C. Stiles farm. In Fairmount district, Marion County, the Bell Oil & Gas Co. has started to drill on the Marcella Barrickman farm. In Union district, Tyler County, the Hope Natural Gas Co. has made a location on the A. G. Smith farm. In the same district, J. H. Pentz is building a rig on the Solomon Kyle farm. In Liberty district, Marshall County, the Manufacturers Light & Heat Co. is hauling tools to a location on the T. L. and V. P. Reid farm.

In Grant district, Ritchie County, Snider Brothers have started to drill on the Akey Ingram farm. In the same district, the Hope Construction & Refining Co. is hauling rig timbers to a location on the Noah Jordon farm. The same company is starting to drill on the Andrew Jordon farm. The Manufacturers Light & Heat Co. is fishing for a wire line and tool on the Henry Ahouse farm.

In Grant district, Pleasants County, the Faith Oil Co. has started to drill another test on the Hammett heirs' farm. On Cedar Run, Murphy district, Ritchie County, the Cedar Run Oil & Gas Co. is drilling a second test on the L. C. Scott farm.

Lincoln County

In Carroll district, Lincoln County, the Columbia Gas & Electric Co. is rigging up at a test on the J. B. Johnson farm. In the same district, the Laurel Development Co. has started to drill a second test on the Elias J. Mahone farm. In the same district, C. C. Wolfe has started to drill a second test on the George A. Black farm. In Grant district, Cabell County, W. H. Curtley & Co. have shut down for casing at a test on the W. E. Martin farm.

Walter Null is due in the Gordon sand at a test on the C. J. Bartrug heirs' farm, in Church district, Wetzel County. In Sheridan district, Calhoun County, Martin Crawley is rigging up on the Lethy Cain farm. In Birch district, Braxton County, the Pure Oil Co. is rigging up on the H. H. Bourne farm. In Harper district, Roane County, Simms & Co. have started to drill in the S. M. Curry farm. In Spencer district, Godfrey L. Cabot has a rig completed on the A. J. Runnion farm. In Reedy district the Heck Oil Co. has a rig on the A. D. Tallman farm.

In Carroll district, Lincoln County, L. E. Sweetland has started to drill on the Andrew Burns farm. In Grant district, Cabell County, the Monickel Gas Co. has started to drill on the A. H. Nichols farm. In Barboursville district, Ortman & Shipe are drilling at 1,600 feet on their own farm. In the New Milton district, Doddridge County, the Hope Natural Gas Co. is hauling rig material to a location on the S. A. Hurst farm.

Southeast Ohio

A slight improvement was shown in development work in the southeast Ohio fields at the close of the week. In Section 13, Hanover Township, Licking County, the Edward H. Everett Co. completed and shot in the Clinton sand No. 3 on the Mary F. Wilhelm farm. It produced 200 bbls. the first 24 hours after shot. This is the largest producer the

(Continued on Page 79)

OIL WELL DRILLED IN LUMBER YARD IN SAGINAW FIELD CATCHES FIRE

By Whit
Staff Correspondent, Michigan Fields

SAGINAW, Mich., Feb. 18.—Bleak and blustery winds affected development work in the Saginaw Field during the week, although four completions were made, all producers of the average initial wells. The best of the late completions was the Ohio Oil Co.'s No. 3 on the Mershon-Eddy-Parker property, a lumber yard in the village of Carrollton, in Carrollton Township, Saginaw County. This well was shot with 60 quarts; and with the explosion of the shot, a puffing flame of gas caught fire, which wrecked the drilling machine, but was extinguished by the fire department without damage to the big mill and its lumber piles only a short distance away.

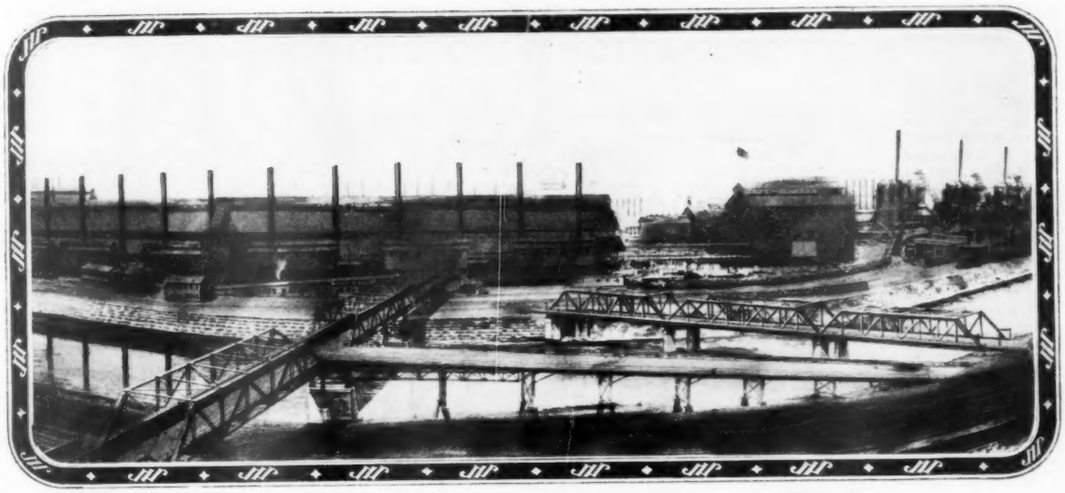
Exactly what happened, no one seems to know; but just as the gas was rising from the hole, there was a violent puff, and the whole drilling machine house was enveloped in flames. A few seconds later, apparently when the oil started to rise from the hole, striking a metal umbrella placed to keep it from flying into the air, the flames sprang up with renewed intensity, and the whole structure was blazing fiercely. A fire alarm was turned in from the box on the property, and long alarm blasts were blown from mill whistles, and within a short time the fire was brought under control. Two high-pressure streams put out the burning wood, and then the two, used in crossfire over the mouth of the casing, snuffed out the burning gas issuing from the hole. Those in charge of operations at the well said they had no idea what caused the fire. Warren H. Smith, field representative for the Ohio Oil Co.; Ray McKinney, a member of the firm of McKinney Brothers, drilling contractors on the job, and Herbert McMillen, the shooter, all told the Saginaw News Courier they were mystified as to the cause. They said there was no fire, either in the forge or the stove, nor anyone near the rig. Though the drilling outfit stood comparatively close to buildings of the plant, and even closer to lumber piles, the fire did not spread, absence of any strong wind helping to confine the fire to the vicinity of the well. Damage to the drilling equipment may reach $1,000, Mr. McKinney said. The showing made when the well was drilled in puts it into the 25-bbl. class as initial production, but its real value can not be given until it is put on the beam.

The Saginaw Prospecting Co., the discoverer of the Saginaw Field, brought in three out of the four completions for the week. No. 1 on the Christian Scherzer property, Section 11, Saginaw Township, close in to production, struck top of Berea at 1,828 feet, and drilled 20 feet into the sand, giving it an 80-quart shot, with prospects of a 25-bbl. initial producer. No. 3 on the George Deindorfer property, not far removed from the discovery well, being east a short distance, is showing for a 20-bbl. producer. This well is at Hermansau Road and the Pere Marquette Railroad. No. 1 on the Chessar property, on Shattuck Road, within defined limits, is also showing for a 20-bbl. pumper initial. Sand was topped in this well at 1,826 feet, and drilled 19 feet in, and given an 80-quart shot.

Going to Saginaw Sand

The Sun Oil Co., according to reports, is going to get real busy in the Saginaw Field, with intentions of getting out as much crude from the field as possible.

(Continued on Page 80)



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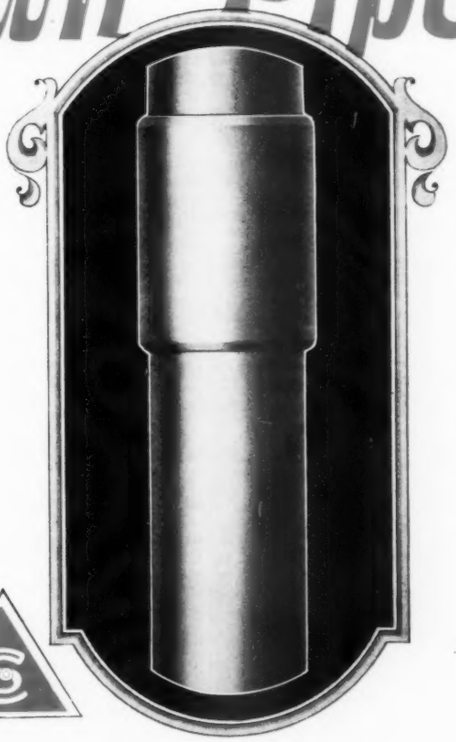

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EQUIPMENT AND SUPPLIES

NEW STEEL VALVE LINE FOR REFINERY SERVICE

Walworth Co. announces that a new line of Class AA steel valves is now available for 400, 600, 900 and 1,350 pounds hot oil pressure at 750 degrees Fahrenheit. The valves are trimmed with Sigmalloy No. 351. Sigmalloy is the name applied by Walworth (and registered) to valve trims and other material of special character used in Walworth valves and fittings.

Walworth Co. recently issued an announcement that the presence of Sigmalloy indicates superior qualities of heat and corrosion resistance and strength not possessed by ordinary materials. Sigmalloy has been developed as the result of research work by metallurgical engineers, whose findings have made it possible for this new material to be used in fields where unusually severe service conditions are encountered. Two Sigmalloy valve trims, Nos. 222 and 351, have been announced to date. The former is available and recommended for steam installations at 150 and 300 pounds at temperatures up to 750 degrees Fahrenheit. Sigmalloy No. 351 is now available for 400, 600, 900 and 1,350-pound valves in steam and oil lines at high temperatures. The Class AA valves, ranging as high as 1,000 degrees Fahrenheit in temperature ratings, are designed particularly for oil refinery service.

OPENS SERVICE OFFICE IN OKLAHOMA CITY

Expansion of sales and service in the Mid-Continent by Regan Forge & Engineering Co. has necessitated the opening of a service office in Oklahoma City, according to an announcement by the manufacturers. F. W. Ulin, formerly of the National Supply Co., has been appointed field representative at Seminole and other territory nearby, and will have his office at 531 West Main Street, Oklahoma City.

W. C. Antrus, formerly connected with the Bradford Supply Co. at Wichita Falls, Tex., has been appointed field representative for the Gulf Coastal and Louisiana fields, and will make his headquarters at the Houston office.

Lew Hilton, in his capacity as general sales representative in the Mid-Continent, will have supervision over the offices in the Mid-Continent. Under the new arrangement, the Regan organization will be able to keep in closer contact with the industry, according to Joseph M. Regan, president.

MAIDEN TRIP OF MOTORSHIP

A record maiden voyage by the United States Shipping Board motorship Unicoi was reported in a radio message from Venice to the Worthington Pump & Machinery Corp. The Unicoi, third of the board's fleet of a dozen Dieselized vessels now in process of conversion, negotiated the 6,539 miles from New Orleans to Venice without a stop, or in "two twists of the wrist," as Capt. Herbert Hudson, skipper, phrased it.

SINGLE RING ARCHES

At the Midwestern Engineering Exposition (Chicago Power Show), which was held in the Coliseum at Chicago from February 15 to February 19, Botfield Refractories Co., Swanson and Clymer Streets, Philadelphia, Pa., displayed two unusual single ring arches, built with Adamant fire brick cement. In these arches, approximately 150 pounds of refractories are supported by a thin layer of Adamant cement. In addition, there were displays of the various uses of Adamant cement in boiler furnace brick construction, as well as data on Adamant service in representative power plants.

LINE PIPE KEEPS MILLS GOING; PRODUCTION IS CLOSE TO RECORD

By B. E. V. Luty

PITTSBURGH, Pa., Feb. 21.—Pipe mills are so well filled on line pipe business of the larger sizes, chiefly for gas lines, that they are in comfortable shape as to lap-weld operations. Lap-weld furnaces making the larger sizes are almost all running full, and furnaces making the smaller sizes still have some stocking to do. Thus, on the whole, the line pipe work is tiding the mills over until the time when demand for casing and other well material has its seasonal activity.

Production of line pipe at the present time is close to the record rate, and it is certainly above any rate ever attained at this time of year. Butt-weld furnaces are operating at quite a moderate rate, as demand has improved only a trifle thus far since the first of the year, and there is not much occasion for stocking, as the mills have about all the stock they feel like carrying in standard pipe. Last year they were under no great pressure at any time to make standard pipe deliveries, so that there is no occasion to accumulate much stock at this time, particularly as predictions are common that there will be somewhat less building this year than last.

Operations 85 Per Cent

Pipe mill operations as a whole may be estimated at 80 to 85 per cent, probably closer to 85 per cent. This compares with a pretty steady rate of 75 per cent through December and January.

Little is now heard about price shading in oil country goods or merchant pipe. In January it was generally understood that two producers were shading on some of their sales.

The volume of steel buying in general has continued to improve, though at no rapid rate. The increase may be considered purely seasonal, since in each one of the past three years the peak production of steel as a whole was reached in the month of March. In each of those years, production then went down to a low point in July, with recovery afterwards. In 1924 this secondary rise continued to December, in 1925 it continued to November, and in 1926 it continued to October.

Thus the fact that steel demand and production have been increasing does not constitute an augury for this year as a whole. Production in the past three months, November, December and January, has been about 10 per cent under that of a year ago. Thus the present appraisal is that the increase is seasonal, and the year at the moment is promising to run, say 10 per cent, under last year in point of tonnage.

Trend in Prices

There is a slight downward trend in steel prices in general, but only in spots. Unlike the market there used to be before the war, when practically all steel prices moved up and down more or less together, each steel line now makes its own market according to its own conditions. The weakening began with sheets and strips last October, while in January bars and shapes joined in, and early this month plates weakened. The latest decline is in wire products, which came to be shaded more and more until, finally, the producers came out openly with prices $2 a ton below those which had ruled for more than a year and a half. Seeing that the old prices had ruled since June, 1925, the decline is significant. Prices are now on the basis of 2.40 cents for plain wire and $2.55 for nails, f. o. b. mill, Pittsburgh district, with prices at other basing points are in keeping. In some sections of the south, there is shading beyond the new prices as openly quoted.

In tin plate, consumers have been taking extra shipmens, and a few mills have been accumulating some stock, the influence being the coming coal strike April 1. In no other steel line is any present demand attributed to the prospective strike, which may almost be said to have fallen flat more than a month before it is scheduled to begin. The coal markets have been declining, and in the Pittsburgh district the market is very poor indeed.

Connellsville coke has stiffened somewhat, but is only getting up to something like a proper level in keeping with production cost. Spot furnace coke is now $3.35 to $3.50, with foundry coke in general at $4.25 to $4.75 per net ton, f. o. b. ovens.

Valley pig iron remains very dull.

NEW PUMPING POWER

To the large Lightning line of oil field supplies manufactured by the K. C. Hay Press Co., Kansas City, Mo., has been added another pumping power. The Lightning No. 3 power is similar to No. 2, but is more powerful and a higher grade machine throughout. The drive gear is inverted and forms its own guard. The rod lines are actuated by a broadfaced eccentric, the same as used on bandwheel powers, and delivers a full 18-inch stroke. The main eccentric shaft is 4½-inch diameter, and is supported at both its upper and lower end. The hub has a bearing 17 inches long, and is lubricated by a positive acting plunger pump, which draws oil out of the base and delivers it into the top of the eccentric hub. This oil also is fed into the eccentric and passes back into the base, and is used over and over. The engine is also equipped with a positive lubricating system of its own.

PERSONNEL CHANGES

Bohumil A. Zikmund, production manager and assistant secretary of the Sivyer Steel Casting Co., Milwaukee, was promoted to treasurer of the company at the annual meeting held in January. Mr. Zikmund has been connected with the Sivyer organization in various capacities since 1912.

Martin A. Fladoes, assistant sales manager of the Sivyer company, Milwaukee, was promoted to sales manager. Mr. Fladoes has been in the sales engineering department of the Sivyer company for five years.

W-K-M EXPANSION

The W-K-M Co. has started the erection of a $30,000 office building, to be located adjoining its new plant at Houston. A warehouse building, 83 by 124 feet, will also be constructed. The new plant, office and warehouse will cover an entire block. The company makes oil well drilling equipment.

The officers of the W-K-M Co. are: Fred McManis, president; L. O. Koen, vice president; D. J. Bryant, secretary and treasurer.

CARRIES COMPLETE STOCK

In order to serve efficiently the west coast, the Trico Fuse Manufacturing Co., Milwaukee, Wis., manufacturers of Trico renewable fuses, "famous for performance," now carries a complete stock of all Trico products with its Seattle, Wash., representatives, the Albert S. Knight Co., 2203 First Avenue, South. This is in addition to the complete stock carried by its Los Angeles, Calif., representatives, the Coast Electric Supply Co., of 222 South San Pedro Street.

H. M. RUNKLE CHOSEN DIRECTOR OF "ARMCO"

The many friends of Harry M. Runkle throughout the oil, gas and artesian industries were pleased to learn of the announcement of his recent election as

Harry M. Runkle

director of the American Rolling Mill Co. of Ohio, manufacturers of "Armco" Iron.

The American Rolling Mill Co. is one of the largest steel companies of the country, maintaining large mills at Middletown, Columbus and Zanesville, Ohio, and Ashland, Ky. It is the largest manufacturer of culvert material in the country and is the maker of "Pure Iron" and "Armco" material.

Mr. Runkle is known throughout the oil industry and is president and treasurer of the International Derrick & Equipment companies. He is recognized as an authority on the subject of prevention of rust and corrosion of iron and steel.

JOINS BLAW-KNOX

Blaw-Knox Co. announced an addition to its engineering and selling in the person of John C. White, president of the Arrowhead Iron Works of Pennsylvania, Inc. Mr. White has recently joined the organization of the Blaw-Knox Co., and has been appointed sales manager of the steel grating and flooring department. He will be located at the general offices of the Blaw-Knox Co. at Pittsburgh, Pa.

D. & B. ENLARGES DALLAS PLANT

Constantly growing business during the past year has forced the D. & B. Pump & Supply Co. to increase greatly the sucker rod capacity of its Dallas plant. This new annex to the Dallas rod department adds over 4,000 square feet to the total floor space covered.

TRADE LITERATURE RECEIVED

From the Kerotest Manufacturing Co. of Pittsburgh, Pa., a folder giving details of fire prevention in oil fields.

The current number of "Rig and Reel," published by the Parkersburg Rig & Reel Co.

The January issue of "Oxy-Acetylene Tips," published by the Linde Air Products Co., contains a very interesting article for the oil industry, entitled "A hundred uses for second-hand pipe."

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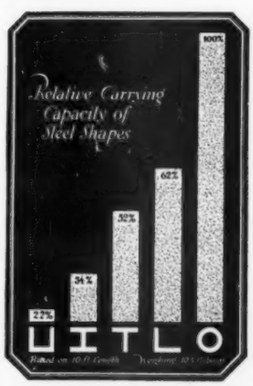

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Natural Gas Developments

HOPE ENGINEERING CO. RIO GRANDE CONTRACT

By B. D. Stevenson

SAN ANTONIO, Tex., Feb. 19.—Judge John W. Gaines, president of the Rio Grande Valley Gas Co., has announced that the contract has been let to the Hope Engineering Co. of Mount Vernon, Ohio, for the construction of 171 miles of main gas line from the Mirando Field to the lower Rio Grande Valley, and for distributing system in all the cities in the valley from Mission to Brownsville. The line will be 12-inch from the starting point in the field to San Benito, and from there to Brownsville, a distance of about 20 miles, will be 8-inch. The cost of the entire project, including main line, distributing systems and gathering lines in the field, will be about $5,000,000.

Announcement that the line would be laid was made some months ago, and work has been in progress on the preliminary details since then. The Rio Grande Valley Gas Co. was chartered some months ago in Delaware. It is expected that when the line is opened for service, there will be from 7,500 to 10,000 meters of domestic consumers in the valley; and the Valley Electric Co., which supplies power to a large number of industries, including most of the big irrigation pumping plants in the valley, will use gas for fuel. The carrying capacity of the line is about 20,000,000 feet daily.

The contract calls for the completion of the line by October 1, 1927, and is a turnkey contract for the entire project. The line starts where the county line between Zapata and Jim Hogg Counties touches the south line of Webb County, and will be a direct air line for 90 to 100 miles to Pharr in the Rio Grande Valley. Rio Grande Gas Co. has franchises to supply all the cities in the valley from Mission to Brownsville. Contracts have been made with the Simms Oil Co., C. O. Maddox and William F. Morgan for supplies of natural gas from the various fields of the Mirando district, these three interests owning 150,000 acres of potential gas land, and with reserves in Starr County.

Hope Engineering Co. will maintain an executive office in San Antonio during the construction of the line, and a field operations office at San Benito. R. B. Lloyd, who had charge of construction work on other lines in this territory built by the Hope Engineering Co., will be in charge of the work.

This will be the fifth line to take gas from the Mirando district. The Border Gas Co. line to Laredo was built years ago. Southern Gas Co. has a line to San Antonio, Houston Oil Co. a line to Houston, and The Texas Company a line to Hebbronville taking a small amount of gas.

Judge John W. Gaines of San Antonio is president of the Rio Grande Valley Gas Co. C. K. Quin of San Antonio and Arthur W. Britton of New York are directors.

Pipe has already been ordered from the Youngstown Sheet & Tube Co., and is to start moving from the mill within 30 day. Right of way has been acquired, and the line surveyed. Workmen are moving into the field, and there will be several units on the job.

TRUITTSBURG GAS FIELD

OIL CITY, Pa., Feb. 19.—A gas well estimated at between 5,000,000 and 7,000,000 feet was brought in on the Bainham farm, Truittsburg, Clarion County, by J. A. Biem of New Bethlehem. An adjoining lease has three producers and three wells being drilled. E. C. Buffington is ready to operate on Church lot in Truittsburg, and the Peoples Natural Gas Co. has secured a location on the H. B. Truitt farm, 1,000 feet from the well which came in at 12,000,000 feet.

UNITED NATURAL ELECTION

OIL CITY, Pa., Feb. 19.—Directors of the United Natural Gas Co. and the Mars Co., elected recently, follow: W. J. Judge, C. F. Huff, George E. Welker, M. J. Talley, William H. Locke, H. S. Rose, G. H. W. Sherman. The officers of the United Natural Gas Co. are: President, George E. Welker; vice president, C. F. Huff; secretary and treasurer, H. S. Rose; comptroller, W. J. Judge; assistant secretary, G. H. W. Sherman; assistant secretary and treasurer, M. J. Talley; assistant treasurer, H. R. Sheldon; superintendents, P. L. Mulkin and J. F. Mullins; chief mechanical engineer, C. W. Gleason; chief civil engineer, William H. Locke. The officers of the Mars Co. are the same, with the exception of William H. Locke being vice president.

LOW PRESSURE WELLS FOR CARBON PLANTS

SHREVEPORT, La., Feb. 19.—Operators in the Monroe gas field have effected an agreement among themselves, at the instance of the Interstate Natural Gas Co., to further conserve the gas field and the high pressure wells by cutting out all of the big wells which have been pulled on heretofore for gas to burn in carbon black plants. In the future all gas burned in carbon black plants will come from wells with a low rock pressure.

The gas from the wells with a high rock pressure will be prorated and turned into the Interstate company's 22-inch gas line running from Monroe to Baton Rouge, La.

Formerly, gas has been taken from all wells according to the pro rata amount permitted to be drawn from each well under conservation laws for carbon black burning. The change made necessary the changing of flow lines, and in one instance the change of location of a carbon black plant. The plan met with the instant approval of the conservation department, and is expected to further maintain the rock pressure of the big wells.

REGAUGING COMPLETED IN MONROE GAS FIELD

MONROE, La., Feb. 19.—The annual regauging of the Monroe gas field to determine the open flow capacity of the field, the rock pressure of each well, and to determine the condition of the field has been completed, according to Capt. R. P. Webb, in charge of the Monroe office of the Louisiana Conservation Commission. Compilation of the report is now under way, and is expected to be completed within 10 days, according to William F. Chisholm, director of the minerals division. The field work was done by John Ransom, Aron Parker and Duncan Cook of the Monroe office.

A new zone map of the field is being drafted by N. E. Dufhilo and J. H. Stinson, Jr., of the Shreveport office, separating the field into areas according to their relative rock pressures.

According to Mr. Chisholm, the gas field is in good shape, considered as a whole. Only a few wells are in need of repairs, and operators have offered their co-operation in repairing old wells.

GAS SURVEY FOR EDNA

SAN ANTONIO, Tex., Feb. 19.—Mayor S. G. Drushel of Edna, in Jackson County, has announced that a corps of engineers of the Houston Pipe Line Co. is to survey the town of Edna in the expectation of installing a natural gas distributing system in the city. Houston Pipe Line Co. is a subsidiary of the Houston Oil Co.

PACIFIC COMPANIES TO SPEND $20,000,000

LOS ANGELES, Calif., Feb. 21.—To provide for the continued growth of Los Angeles and southern California, the four gas utilities now serving this area have announced 1927 budgets, calling for the expenditure of approximately $10,000,000 for extensions and additions to manufacturing and distributing gas service facilities.

Returns from a questionnaire sent to gas utilities in the 11 western states by the Pacific Coast Gas Association indicate that 1927 will be a period of continued prosperity for this industry in the West. To meet this situation, a number of important projects are under way, and western gas companies will spend in 1927 in the neighborhood of $20,000,000 for this purpose.

Of the $20,000,000 to be expended in 1927, approximately $15,000,000 will be spent by California corporations, and the bulk of this by utilities serving the various sections of southern California, principally Los Angeles.

The largest budget announced is that of the Pacific Gas & Electric Co., calling for $4,256,000 for betterments. This appropriation, however, includes expenditures for electric service as well as gas.

The Los Angeles Gas & Electric Corp. has provided $2,500,000 for extensions and betterments to its gas service facilities, and the Southern Counties Gas Co. has announced its 1927 budget as $1,750,000. The Southern California Gas Co. is expected to spend in the neighborhood of $4,000,000, the amount expended in 1926. The 1927 budget of the San Diego Consolidated Gas & Electric Co. totals $980,000 for gas improvements.

Other appropriations made by the major utilities for 1927 additions to gas service facilities are: Portland Gas & Coke Co., $1,000,000; Public Service Co. of Colorado, Denver, Colo., $1,000,000. The recently organized Ventura Fuel Co. has under way its $1,500,000 transmission line from Ventura to Los Angeles.

Despite the unusually mild western temperatures in the early months of 1926, which affected gas sales adversely, the colder weather in December brought the greatest gas sendout on record for most gas companies, and was responsible for a general larger sendout for 1926 over 1927.

New developments to be looked for in 1927 are the introduction of gas-fired refrigerators, which are now on production by several of the larger manufacturers; the sale of gas-fired incinerators for domestic use, and a continued emphasis in house treating, in which Pacific Coast gas companies have always been leaders. The use of gas for firing boilers, for oil well drilling, laundries, dairies, and in all kinds of plants that require the generation of steam for power, is increasing.

MERCER, PA., TO GET GAS FROM NEW FIELD

MERCER, Pa., Feb. 19.—Gas from the wells of the Mill Run Gas Co. in Springfield Township is being turned into the lines of the Mercer Gas Light & Fuel Co. under a 6-ounce pressure. The Mill Run Gas Co. has three good producing wells, located on the M. B. Carr, W. C. Christly and the Blumenshine farms. Further drilling will not be done at present. The company, which is composed of farm owners and J. W. Byers and W. N. Hovis, of Mercer, originally had a block of 1,000 acres to test, but recently took up a number of other leases.

The Mercer Gas Light & Fuel Co. was formed in 1886, purchasing gas from what is now the United Natural Gas Co. Under the contract, the company is to furnish the Mercer company with gas as long as it has any market, and an attempt a few years ago to annul the contract by that company was turned down by the Public Service Commission, and was held to be perpetual. If at any time the production of the Mill Run company should be insufficient to supply Mercer, the supply will again come from the present source.

The recent tests made by both the Mill Run company and the New Wilmington Gas Co., which recently became a part of the merger in the Columbia Gas Co., have resulted in much leasing in the Springfield Township Field.

GAS FROM AMARILLO AND DENVER FRANCHISE

DENVER, Colo., Feb. 19.—The Public Service Co. of Denver, which has served the city with artificial gas for some years, has been awarded a new 20-year franchise. The award was hotly contested. Under the terms of the franchise, the company has the exclusive right to furnish not only artificial but also natural gas for industrial and domestic use within the city limits.

It is reported that the Public Service Co. is negotiating with the Standard Oil Co. of New Jersey and the Prairie Oil & Gas Co. with a view to piping gas from the Amarillo Field. This would involve the expenditure of several million dollars, but has been considered feasible by practical oil men. The Public Service Co. has drawn plans for a new artificial gas plant in case it is found necessary to depend upon this type of fuel.

OHIO GAS SALE

The West Lafayette Oil & Gas Co., serving the consumers of West Lafayette and the surrounding districts, has been purchased by the Ohio Central Gas Co., which serves Coshocton, Ohio, it was announced by Raymond A. Siegrist, manager of the latter concern. S. J. Beall, of West Lafayette, was president of that company. The concern owned several wells which were included in the purchase. These wells furnished about half of the gas consumed by the residents of that section, the remainder being purchased from the Ohio Central Gas Co.

HOUSTON'S NATURAL GAS USE

HOUSTON, Tex., Feb. 19.—The introduction of natural gas has increased its use in Houston, both by domestic consumers and industries. The Houston Gas & Fuel Co. reports a total of 353,000,000 feet consumed during January, compared with 233,616,000 feet during December, 1926. The industrial consumption jumped from approximately 86,000,000 feet in December to 153,000,000 feet in January. The Houston Gas & Fuel Co. is a distributing company securing the natural gas from the Houston-Gulf Gas Co.

WHEELER COUNTY GASSER

McLEAN, Tex., Feb. 19.—A gas well making 60,000,000 feet of wet gas came in 8 miles northeast of McLean, in Wheeler County, in Section 126, Block 23. The lease belongs to the Canadian Oil Co. and is being drilled by the Upham Gas Co. as contractors. The fee owner is C. Linkey. The depth is 1,998 feet.

GIBSLAND GAS PROJECT

GIBSLAND, La., Feb. 19.—Gibsland may have gas for domestic and industrial purposes. Belchie and Laskey, of Shreveport is engaged in building and operating natural gas pipelines and supplying the smaller towns in this section of North Louisiana with natural gas for domestic purposes, were in Gibsland conferring upon this matter.

A New GUIBERSON PRODUCT

Guiberson Casing Oil Saver

The GUIBERSON Casing Oil Saver is an outgrowth of our Tubing Oil Saver, now in wide use throughout the Oil Industry. It has been designed for use in those localities where heavy flows of oil and gas are encountered,—to prevent the escape of oil or gas while running the oil string.

The Casing Oil Saver is attached to top of the casing in the well, and the smaller string is run directly through it. Pipe collars pass through readily without permitting escape of oil or gas. Outlet connections provide for flow of such oil or gas as may be present. A disc, float shoe or float plug is used inside the smaller string until it is set.

"Better Be Safe Than Sorry"

THE GUIBERSON CORPORATION
Box 1106, Dallas, Texas
CALIFORNIA BRANCH: 1506 Santa Fe Ave., Los Angeles
402 W. First St., TULSA — 321 S. Osage St., PONCA CITY — 506 Trust Bldg., NEWARK, O.

Conserves Oil and Gas

The Casing Oil Saver prevents waste while smaller casing is being run. Conserves valuable gas pressure. Keeps derrick floor clean.

No Poison Gas Escapes

Eliminates danger to men on derrick floor while running casing—necessary for safety in some localities.

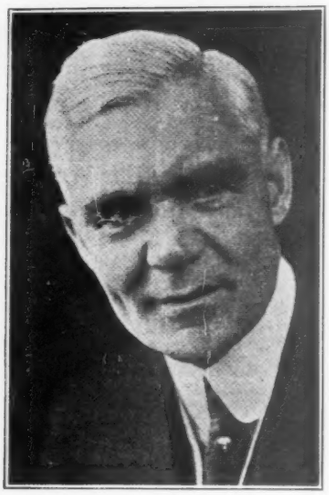
Tested Design—Best Construction

Easily assembled around, or removed from, pipe. Rubbers of exceptionally long wearing composition. Take-up device to tighten worn rubbers. Fits any casing by changing adapter. Fits any pipe by changing rubbers. *Patented.*

GUIBERSON

BETTER BE SAFE THAN SORRY

MEN KNOWN IN OILDOM



Harry A. Wallace

With the election of Harry A. Wallace, of Charleston, W. Va., to the office of president and general manager of the United Fuel Gas Company and the Virginia Gasoline & Oil Company, Mr. Wallace also has been elected vice president and general manager of the Columbia Gas & Electric Company.

The elevation of Mr. Wallace to the head of these large business organizations is the climax of a remarkable story of progress steadily upward since he started as a workman in the West Virginia oil field. His first position was that of a helper about one of the wells. He soon fell into line as a tool dresser and passed through the successive stages of the oil production business, and finally into the distribution end of it.

Mr. Wallace has served as president of the West Virginia Gas Association and of the National Gas Association of America. He has been associated with the United Fuel Gas Company for about 16 years. Prior to that he was with the Hope Natural Gas Company.

Mr. Wallace is one of the best informed natural gas men in the United States regarding both production and distribution.

PERSONAL PARAGRAPHS

J. S. Cullinan, of Houston, Tex., is in New York City.

* * *

John Sherrine, who recently sold the Shamrock Oil Company, was in San Antonio, Tex., for a few days.

* * *

W. T. Hazel, sales manager for the Parkersburg Rig & Reel Company, was in Shreveport, La., recently.

* * *

O. L. Gates and A. T. Wildman are back in San Antonio, Tex., after an auto trip through west Texas.

* * *

Charles P. Carter, of the Rydal Oil Corporation, is back in San Antonio, Tex., after some weeks spent in west Texas.

* * *

Mrs. Rae Gregory and daughter, Marion, of Petrolia, Ontario, have left to join Mr. Gregory in the Venezuela fields.

* * *

John C. Trefts, of the Farrar & Trefts Boiler Company, Inc., of Buffalo, N. Y., was a Tulsa, Okla., visitor last week.

* * *

J. R. Munce, president of the Arkansas Natural Gas Company, Pittsburgh, Pa., is in Shreveport, La., on a business mission.

E. M. Boyle, formerly of Sandoval, Ill., has been transferred to the Sullivan, Ind., territory by the Illinois Pipe Line Company.

* * *

Richard Repine, of the Foos Gas Engine Company of Springfield, Ohio, has completed a tour of the Mid-Continent oil fields.

* * *

J. H. Nold, of the purchasing department of the Pure Oil Company, has resigned, effective March 15, to enter business for himself.

* * *

C. F. Anderson, Dallas, Tex., head of the land department for the Arkansas Fuel Oil Company, is in Shreveport, La., on a business trip.

* * *

J. M. Hayner, chairman of the board of directors of the Monarch Oil Corporation of Tulsa, Okla., was a Fort Worth, Tex., visitor recently.

* * *

P. J. Malone has joined the sales staff of the D. F. Connelly Agency at Tulsa, Okla., and will specialize on wire rope and mechanical rubber goods.

* * *

Underwood Nazro, second vice president of the Gulf Refining Company, Houston, Tex., spent a week in Shreveport, La., recently on a business trip.

* * *

H. F. Gibson, of Abilene, Tex., member of the firm of Gibson & Johnson, was in Fort Worth, Tex., on business, accompanied by his geologist, E. W. Hummel.

* * *

T. R. Johns, since 1919 assistant secretary of the White Eagle Oil & Refining Company, of Wichita, Kans., has resigned to enter the oil business as an individual.

* * *

Claude M. Murray, of the Murray Tool Company, of Tulsa, Okla., has returned from a trip through the West Texas Fields where he arranged a sales representation.

* * *

Robert E. Connell, sales manager of the Staytite Company of Houston, Tex., has returned to the main office after a week spent visiting the Mid-Continent trade.

* * *

Leo Gorton, formerly chief engineer of construction at Tulsa, Okla., for the Roxana Petroleum Corporation, has joined Whealton & Townsend Company as assistant district manager.

* * *

P. V. McGivern, president and general manager of the B. & A. Specialty Company, of Tulsa, Okla., has returned from the Gulf Coast Fields after opening a branch office at Houston, Tex.

* * *

Harry Rhinelander, for the past three years superintendent of drilling for the Standard Oil Company of New Jersey interests, in Palembang, Sumatra, D. E. I., is en route to Tulsa, Okla.

* * *

W. H. Gaither, district manager for the National Transit Pump & Machine Company, Houston, Tex., has returned from a business trip to Fort Worth, Dallas and the North Central Texas Fields.

* * *

M. R. Gayle, representative of the Lee C. Moore Company, Tulsa, Okla., in Louisiana and Arkansas, has left Shreveport, La., for the Mexican fields on a business tour for the Lee C. Moore Company.

* * *

Laylor Saathoff has been elected secretary-treasurer of the Alamo Petroleum Company of San Antonio, Tex., of which E. S. Smith has been the president since the organization two years ago.

* * *

W. T. Cushing, representing the Dearborn Chemical Company, Chicago, has returned to Houston, Tex., following a trip to the north Louisiana and Arkansas Fields. He is a veteran pipeline man, supervising the laying of the first line in Texas at Corsicana.

* * *

H. F. Alexander, president of the Pacific Steamship Company, a director of the National Foreign Trade Council and of the American Bureau of Shipping, has been elected to the directorate of the recently organized California Eastern Oil Company which was formed through a merger of the Julian Petroleum, Marine Oil Corporation and several other independent companies both in California and east of the Rockies.

L. A. Reed, formerly superintendent of the Midwest Refining Company's plant at Casper, Wyo., and later publicity director for the same company, is a visitor in that city from his home in Santiago, Calif.

* * *

John McFadyen, vice president of the Ohio Oil Company and manager of Ohio operations in the Rocky Mountain district, is attending the annual conference of officials of the company in Findlay, Ohio.

* * *

Harold Fry, a director of the Standard Oil Company of Venezuela, has returned to his headquarters at Maturin, Venezuela, after an extensive visit with his parents, Dr. and Mrs. George Fry of Oil City, Pa.

* * *

Max Morgan, geologist for the Wentz Oil Corporation, who has been devoting about half of his time to north and west Texas lately, returned to Ponca City, Okla., for a couple of weeks' labor in the home office.

* * *

J. Robey Penn, president of the Texas Pacific Coal & Oil Company, accompanied by Edgar Marston, vice president, is making an inspection trip in Montana. Mr. Penn was formerly connected with the Midwest Refining Company.

* * *

W. B. Sutton, head of the land department of the Vacuum Oil Company, with headquarters at Houston, Tex., and Dilworth Hager, chief geologist of the same company, were in Fort Worth, Tex., last week on a tour of west Texas.

* * *

J. W. Steele, supervisor of the Mineral Leasing Division of the United States Geological Survey, with headquarters at Casper, Wyo., has been called to Washington, D. C., to confer with other department heads on conservation matters.

* * *

E. W. Owen, geologist for John C .Keys, independent operator of Oklahoma City, Okla., has been spending some of his time in Fort Worth, Tex., in connection with a drilling block east of Cisco, in Eastland County, Texas. His headquarters are at Abilene, Tex.

* * *

Floyd W. Mohler, sales manager for the International Derrick & Equipment Company, with headquarters at Dallas, Tex., is accompanying M. C. Morris, formerly with the National Supply Company but now traveling out of the Dallas office of the International, on a tour of the Mid-Continent Fields.

* * *

Paul Sandlin, who has been manager for the General Supply Company, in Casper, Wyo., for several years, has severed his connection with that company and will assume a similar position with a Kansas supply firm. Mr. Sandlin will be succeeded in Casper by Robert Black.

* * *

L. E. Phillips, vice president and general manager of the Phillips Petroleum Company of Bartlesville, Okla., and Clyde Alexander, vice president and general superintendent of the same company, visited the Fort Worth, Tex., office last week. A. R. O'Brien, general superintendent in the north Texas district, was also in Fort Worth from his headquarters at Breckenridge, Tex.

* * *

George W. Crawford, one of the best known gas men in the United States, has given the entire 80-acre hillside across the Allegheny River from Emlenton, Pa., to Emlenton to be used as a park and to be known as the Crawford Municipal Park. It is one of the beauty spots of northwestern Pennsylvania and widely known for its many varieties of native trees, shrubs, vines and bushes.

* * *

Edgar D. Davis, president of the United North & South Oil Company, who was responsible for the opening and development of the Luling, Texas, Field, recently started a $1,000,000 fund for needy orphans of the State of Massachusetts, according to a dispatch from Brockton, Mass. The foundation will be drawn on the same line as one Mr. Davis established some time ago in Luling, following the sale of his immense oil properties in the Luling Field to the Magnolia Petroleum Company.

"OILWELL" HERCULES STEEL SUCKER RODS

"OILWELL"

Originated the Upset Steel Sucker Rod
Made from One Piece of Steel and Weldless

Features of
"OILWELL" Hercules Steel Sucker Rods

Free wrenching which saves labor and time, and also eliminates the freezing of threads. The end of the pin on all Hercules Rods is crowned to protect the first thread from damage and to facilitate easy starting of the joint.

Friction joints—Hercules Joints "shoulder up" readily and are easily locked with wrenches, thereby eliminating unscrewing in the well. The boxes are counterbored which keeps sand from accumulating on the joint shoulder when "setting up."

Fillet at pin base gives additional strength to pin.

"OILWELL" Hercules Steel Sucker Rods can be furnished in two styles — box and pin, or pin and pin with couplings. They are practical in design, sturdy in construction and efficient in service. Popular sizes are carried in stock at all district points.

"OILWELL" ESTD 1862 C O TRADE MARK REGISTERED

Inquire at any of our 100 Branches

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON
WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

"Our Franklin Valveless Engine Runs Like a Cadillac"

That's what W. J. Bradley, driller for the Twin State Oil Company, thinks of his power plant. And no wonder! Look at his record.

500 Ft. of Hole in One Week

On the Twin State's wildcatter at Stillwater, Okla., Mr. Bradley put down 500 ft. of 24-inch hole in seven days drilling. But speed isn't all the Franklin Valveless gives you.

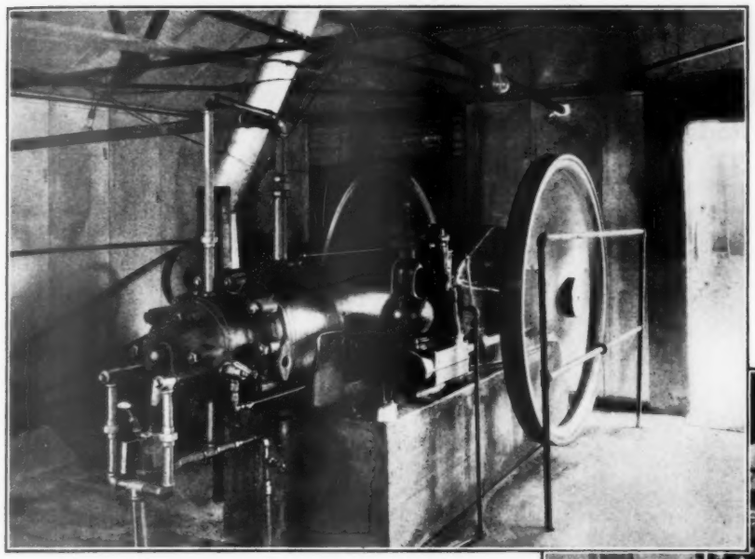
Saved $30.00 a Day

"If steam was used to drill this well," writes Mr. Bradley, "the cost would be about $25.00 a day for fuel oil, and the water, which had to be pumped ½ mile, would cost $10.00 a day. The cost of our Franklin Engine is $2.50 a day for water and the same for fuel oil—meaning a saving of $30.00 per day on these two items alone."

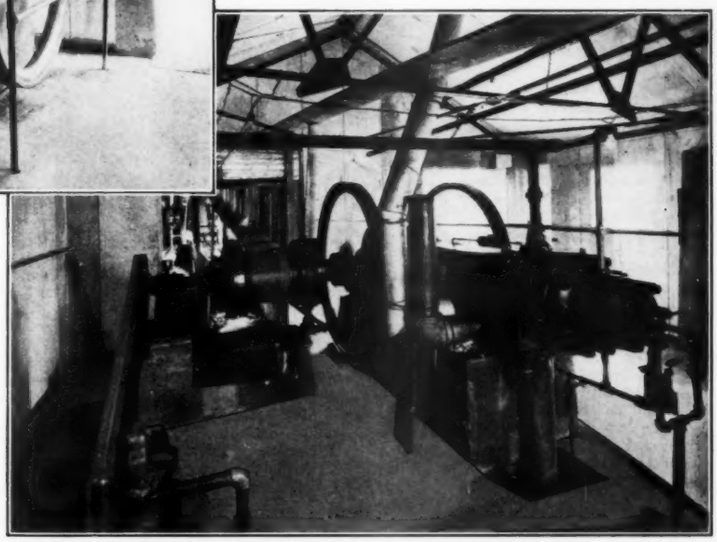
Twin State Oil Company certainly got hold of two good men when they took on Ray Goff, Tool Dresser, and W. J. Bradley, Driller—shown here on the Stillwater wildcat location.

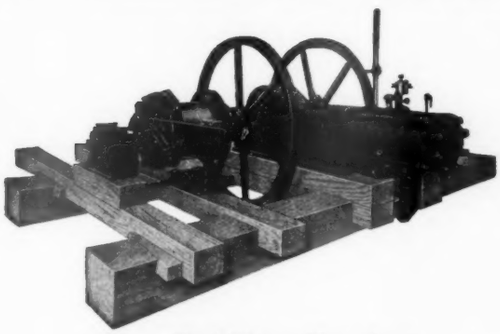
FRANKLIN VALVE

THEY BEAT STEAM



These two photographs give you a good idea of a Franklin Valveless Oil Drilling Engine on the job. A neat, clean installation that requires practically no attention for days on end. The Franklin Valveless is fully controlled from the derrick—fast, flexible, powerful, economical.





Gas Drilling Engine

In fields where casing-head or natural gas is available the Franklin Valveless Gas Drilling Engine is the most practical and economical power plant you could possibly use. It is alike in principle to the Oil Engine but has the added advantage of interchangeability—when drilling is completed you can leave this engine on the block for pumping or replace with one of less horse-power without changing a single bolt on the original foundation. With this feature you can plan the most satisfactory engine foundation—concrete.

What About Your Drilling Costs?

More than one owner has found it costs him less to scrap his boiler and engine and put in a Franklin Valveless than to keep up repairs on his fuel-eating steam outfit. Ask the nearest representative for some facts and figures on the operating and maintenance costs of Franklin Valveless Oil and Gas Engines.

Prices

Complete with self-oiling reversible drilling clutch, circulation pumps and fuel tank.

For Mid-Continent and Western Drilling Service

Oil—$3,350 and $3,700 Gas—$1,725 and $2,150

For Eastern Drilling Service

Oil—$2,600 and $3,350 Gas—$1,450 and $1,725

Pumping Engine Prices on Request

All prices F. O. B. Factory

FRANKLIN VALVELESS ENGINE COMPANY

Franklin, Penna.

Distributed by

Atlas Supply Co.,
Muskogee, Okla., and Branches

New Martinsville Supply Co.,
New Martinsville, W. Va.

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Washington Engine & Pump Co.,
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American Tank Co. of Colorado
Casper, Wyoming

LESS ENGINES

AT EVERY TURN

Training of Petroleum Engineers

A. I. M. E. Takes Up the Subject of Curricula and Methods of Collegiate Preparation

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 18.—One of the most comprehensive surveys ever attempted regarding petroleum engineering educational problems featured the sessions of the petroleum division during the annual meeting of the American Institute of Mining and Metallurgical Engineers, held in New York February 14 to 17. Reports of subcommittees were presented for round-table discussion. Dr. H. C. George, director of the school of petroleum, University of Oklahoma, presided.

In his introductory remarks Doctor George said:

"Each year many of the larger oil companies make it a point to get in touch with young men about to graduate from our colleges and universities. Some companies send a representative to the college campus to meet members of the graduating class and select those whom they think will fit into their organization.

"Still other of the larger oil companies operate training schools for technical graduates from our colleges and universities. After many discussions with men in the industry and after reading over the various letters and reports which form a part of this investigation of petroleum engineering education, these things stand out in mind as being emphasized by many of the committee members; namely, a thorough grounding in basic science, a good knowledge of the use of English and an understanding of business principles."

Analysis of Curricula

Lester C. Uren, of the University of California, submitted the report on petroleum production engineering education, which contained an analysis of curricula offered by six different educational institutions in the United States, the only institutions in so far as the committee members are aware which offer organized curricula directed toward this particular field. The report continues:

Assuming that each of these curricula represents the deliberate opinion of a group of engineers and educators competent to judge of the academic needs of petroleum production engineers, it is a fair premise that the average of six such curricula would be a reasonable guide for the compilation of what might be called an ideal curriculum in petroleum production engineering. Proceeding on this basis, Table 1 indicates the percentage of total time devoted to the various divisions of knowledge in the curricula under review, and the last column shows the average requirement, which, according to our premise, should represent the ideal course.

"No attempt will be made to indicate the proportion of total time that should be devoted to different subjects within these major divisions of knowledge, but a classified list is presented of the subjects that are prescribed in two or more of the curricula of the institutions mentioned.

Appropriate Subjects

List of of subjects appropriate in a curriculum of petroleum production engineering contained in Doctor George's Table 2 are as follows:

Mathematics: Algebra, trigonometry, analytic geometry, differential calculus, integral calculus.

Physics: Mechanics, heat, electricity, light, sound.

Chemistry: General chemistry, qualitative analysis (inorganic), quantitative analysis (inorganic), organic chemistry, physical chemistry.

Mechanical and Electrical Engineering: Mechanical arts (shop work), heat power engineering (elements), dynamo-electric machinery, oil and gas engines, steam engines, air and gas compression, pumping machinery.

Mining and Metullurgy: Elements of mining, economics of mining, first aid and rescue training, metallurgy of iron and steel.

Miscellaneous Other Subjects: English, economics (general), accounting (general), business law, political science, military science, physical education.

Drawing: Engineering drawing, machine drawing and design, descriptive geometry, nomography-graphics.

Geological Sciences: General geology (dynamical and structural), general geology (historical), mineralogy (determinative and descriptive), general palaeontology, petrology, field geology, economic geology, geology of oil and gas.

General Engineering: Surveying, mechanics (strength) of materials, graphostatics, theoretical mechanics, hydraulics, thermodynamics, engineering contracts.

Petroleum Technology: Oil Field development, petroleum production methods, petroleum storage and transportation, oil field mapping practice, oil field management, cost-accounting in oil production, economics of petroleum producing industry, appraisal of oil-producing properties, oil and gas testing, petroleum engineering laboratory research, petroleum refining and utilization, natural gas production, compression and transmission; the natural gasoline industry, thesis.

Civil engineering: Structural design.

Period of Training

"The question of the length of time to be devoted to collegiate preparation of petroleum production engineers, can best be settled by the oil industry, rather than by the universities. When the industry reaches a point in its development where a greater number of years of academic training for its engineers is desirable, the greater remuneration which it will be able to offer engineers having the additional academic preparation, will justify the student in spending a greater number of years in securing this preparation. Until this time arrives, the institutions that are pioneering the five and six-year engineering courses must contend with the tendency of their students to gravitate toward the four-year institutions.

Stick to Four-Year Course

"Members of the subcommittee are apparently unanimous in their opinion that the four-year curriculum should be adhered to, at least for the present and immediate future. . . .

"In an industry that offers so many contrasts in regional practice as the oil-producing industry, there is added incentive for the inclusion of well-rounded descriptive courses that in a short time may give the student a breadth of understanding of the industry and its practices, that many years of practical experience will not give. If the instruction of students is in the hands of competent teachers, alive to the trend of the industry and abreast of current thought and opinion, graduates of the engineering schools may enter the field more nearly on a par with more experienced engineers in their knowledge of the technology of the profession, than if they had had no previous instruction in applied technology. . . .

"The analysis of time devoted to different subjects, in the previous section, indicates that the average time devoted to petroleum technology courses in the institutions now active in this field, represents only 11.6 per cent of the total time required by the curriculum. Your committee believes that this is not excessive, and that the curricula now being offered devote an unusually high precentage of the student's time to subjects that may be regarded as fundamental engineering training. The committee recommends that the institutions concerned be encouraged in continuing to prescribe a moderate amount of the student's time in courses designed to make him familiar with the problems of his specialized field of endeavor. . . .

Supplemental Study

"Where the lecture system is followed, a suitable textbook or syllabus paralleling the lectures, should be employed if available. . . . Where possible an effort should be made to supplement formal lecture courses with a series of illustrative problems, designed to test the student's understanding of the principles involved.

"Laboratory courses also serve a useful purpose as adjuncts to the formal lecture course. Field trips under the guidance of an instructor should be helpful and stimulating. . . .

"While recognizing the desirability of the service that the universities might give in conducting extension courses for the benefit of oil field employes unable to give full time to academic work in the regular sessions, a majority of the members of the committee are opposed to the universities entering the field of correspondence instruction in petroleum production engineering."

The subcommittee comprises the following: A. W. Ambrose, W. H. Jeffrey, J. L. Rich, J. R. Suman, J. B. Umpleby, L. C. Uren (chairman.)

Table 1—Showing Percentage of Total Time Allotted to Various Subjects in Petroleum Production Engineering Curricula at Various Institutions and the Average for Each Subject

Subject—	Univ. of Calif.	Stanford Univ.	Colo. School of Mines	Univ. of Okla.	Univ. of Pittsburg	Missouri School of Mines	Average Requirement
Mathematics	8.2	5.3	10.7	12.5	11.6	11.4	10.0
Physics	8.2	2.8	6.3	6.6	8.7	7.6	6.7
Chemistry	15.0	4.2	13.2	5.3	21.0	17.7	12.7
Geological sciences	21.1	12.3	9.4	15.1	14.5	12.0	14.1
Drawing	3.4	8.4	6.3	4.0	1.5	3.8	4.6
General engineering	14.3	10.5	15.7	18.4	2.9	12.6	12.4
Mechanical engineering	4.1	8.1	5.0	13.8	.....	5.1	6.0
Civil engineering	.....	.....	1.2	.....	.....	3.2	0.7
Mining and metallurgy	5.4	3.5	1.2	2.0	.....	0.6	2.1
Petroleum engineering	6.1	7.4	12.6	8.5	27.5	7.6	11.6
Military science and physical education	5.4	.....	3.8	2.6	2.9	5.1	3.3
Economics, business law, political science	1.4	10.5	1.9	7.2	5.1	3.8	5.0
English, foreign language, history, public speaking	.....	10.8	5.7	4.0	4.3	7.6	5.4
Thesis	2.7	1.8	.....	.....	.....	1.9	1.1
Electives	4.7	14.4	7.0	.....	.....	.....	4.3
Totals, per cent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total number "units" required for grad.*	147	190	159	152	138	158	†151
Duration of course	4 yr	6 yr.	4 yr.	4 yr.	4 yr.	4 yr.	

*The "unit" is one hour of lecture or three hours of laboratory work per week for one semester. †Average of four-year curricula.

FIRST OIL MAN CHOSEN PRESIDENT OF A. I. M. E. AT NEW YORK MEETING

By L. M. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 19.—At the one-hundred and thirty-fifth annual meeting of the American Institute of Mining and Metallurgical Engineers, E. L. DeGolyer, president of the Amerada Petroleum Corp. and one of the most prominent American petroleum geologists, was elected president, succeeding Dr. S. A. Taylor, elected last year and representing the coal industry. This is the first time that the honor of heading America's leading engineering society has been given to an oil man.

Dr. George Otis Smith, director of the United States Geological Survey, whose work in petroleum matters has recently been particularly prominent, was elected vice president. Petroleum was further represented on the executive roster by the election of F. Julius Fohs, consulting geologist of New York, to the office of vice president, and by B. O. Mahaffy, president of the Silurian Oil Co., elected a vice president last year. Doctor Smith was formerly a director of the institute and retains this office. Mr. Fohs was elected a director.

New officers elected for the petroleum division were John H. Lovejoy, Amerada Petroleum Corp., chairman; Walter Miller, vice president Marland Refining Co., vice chairman in charge of the refining section; J. E. Umpleby, vice president Goldelline Oil Corp., vice chairman in charge of production engineering; William E. Wrather, consulting geologist, vice chairman in charge of production; J. E. Pogue, consulting engineer, vice chairman in charge of economics, and F. K. Haskell, vice chairman in charge of transportation engineering.

Mr. DeGolyer has won distinction in

E. L. DeGOLYER
New President, A. I. M. E.

the engineering profession by his pioneer geological work in Mexico, by geological

(Continued on Page 82)

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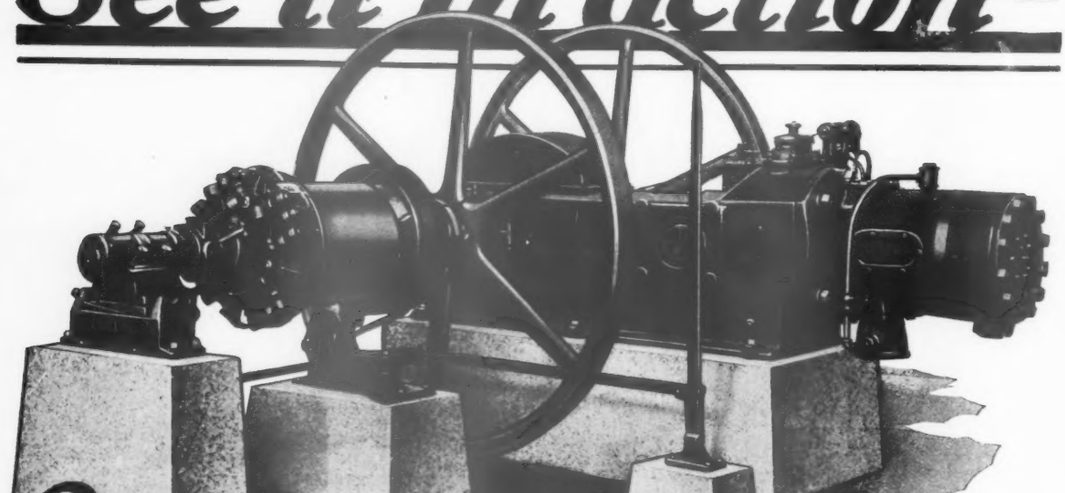

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BESSEMER OIL FIELD ENGINES – COMPRESSORS VACUUM PUMPS – ROLLER PUMPING POWERS

Peak of Huntington Beach Field Past

Production of California May Register Temporary Declines Until Seal Beach Begins to Make Itself Felt

By J. E. Eaton
Consulting Geologist

The first phase of increased production in California is now past as a result of declines at Huntington Beach. The sudden rise of this field from 45,000 to 105,000 bbls. daily within a period of three months was responsible for the increased output in California during this time. There would, in fact, have been little change during the last three months of 1926 but for this factor, as the increase of both field and state was much the same, or around 60,000 bbls.

The peak at Huntington Beach arrived January 1, 1927, and was rather accurately predicted by one or more writers.[1]

Present Situation

The oil industry should not jump to the conclusion that the output of crude oil in California will revert to its old figure with the falling off of Huntington Beach. This field merely hastened a general upward revision which the discovery at Seal Beach made almost inevitable. The more dependable production which the latter field will provide was anticipated by Huntington Beach. Further slight declines in the California total are probable in the near future, but these may be expected to cease when Seal Beach gets under way.

Although it is deemed improbable that Huntington Beach will again reach its recent peak, some additions to the proven area of the townsite will doubtless be made. The field as a whole contains some of the largest reserves in southern California, and will exert considerable influence over a period of years.

The total producing territory at Huntington Beach is more than 10 times as large as the small flush area shown as proven upon a part of the accompanying map. One oil company has undrilled proven and semi-proven acreage in the field that covers six or seven times as much territory as this flush area which recently furnished 60,000 bbls. daily. The reserve acreage is in large part protected, and will doubtless be developed slowly, thus banishing any apprehension regarding overproduction from this source.

In view of the importance of this field, the following brief summary is presented.

Geology at Huntington Beach

Huntington Beach is located in a southern corner of Los Angeles Basin whose economic stratigraphy includes approximately 7,000 feet of reservoir rocks embraced in various divisions of the Fernando group (uppermost Miocene, Pliocene, and lower Pleistocene), these overlying 3,000 feet of Puente (Miocene) sandstones and organic shales. Nearly all of the wells at Huntington Beach produce from the lower half of the Fernando or reservoir group. A few deep wells in the extreme southern corner of the field may have reached the underlying Puente or generative division.

The structure at Huntington Beach, considered as a whole, is perhaps that of an anticline whose axis lies off shore and under the Pacific Ocean. Longitudinal faulting has, however, divided the landward portion into two or more steps, with the result that the northeastern flank (which includes all present production) now comprises a series of monoclines dipping to the northeast.

Huntington Beach was formed in common with seven or more other productive structures, as a result of predominately horizontal movements along a line of deep-seated faulting extending from Newport to Beverly Hills. This line is known as the Newport-Beverly fault zone. The drag attending these movements formed a long series of anticlines and secondary faults arranged on echelon and extending in a line for 40 miles. Newport, Huntington Beach, Seal Beach, Long Beach, Dominguez, Rosecrans, Inglewood and Beverly Hills comprise the anticlines at present productive along this line. The geology has been discussed elsewhere by the writer in more detail.[2]

The line of maximum sheering apparently passes through the Huntington Beach Field, and either this, or secondary faulting at a slight angle, divides the older productive territory from the new townsite area.

History of Development

Huntington Beach was discovered by the Standard Oil Co. of California on May 24, 1920, when its well Huntington A, No. 1, located near the probable ultimate center of production, opened a shallow, heavy gravity oil zone of limited thickness and extent at a depth of 2,199 feet.

The first large production of the field came from the Bolsa No. 1 well of this same company, which was brought in at 2,459 feet with a daily production of several thousand barrels of 25 degrees Baume oil. This well has produced more than 2,000,000 bbls. of petroleum in the past six years. The Bolsa zone yields oils of from 17 to 27 degrees Baume over a fairly large territory. It is limited on the northeast by edgewater, and upon the south and west by a tarrification and thinning of its productive measures due in part to faulting.

Ashton Zone Production

The largest production of the field has come from the third or Ashton zone discovered in the Ashton No. 1 well of the Eddystone Oil Corp. (now Shell Co. of California). This zone which in certain areas is productive to depths of 4,950 feet, furnished initial productions up to 4,000 bbls. per day of 24 to 29 degrees Baume oil. It locally totals more than 2,000 feet in thickness. The Ashton zone is considerably larger than the Bolsa zone in areal extent. It reaches its greatest development in the northeastern part of the field. In common with the overlying productive measures it decreases in importance to the south and west, and apparently from the same causes.

A fourth horizon known as the Surf zone produces small quantities of heavy oil upon the extreme southern edge of the field.

The so-called townsite, now in the limelight, is a small congested area in which the spacing is about half an acre per well (see map). An appreciable easterly dip of the structure is indicated. The producing sands have an almost continuously productive thickness of 1,200 or more feet in the highest part of this area (the extreme west corner), the productive thickness decreasing down dip toward the east. Intermediate water is indicated to be present in these sands on the lower edges of the productive territory, but careful correlations and the selecting of certain horizons may enable certain of this edge territory to furnish commercial wells.

The higher part of the townsite area yields oils averaging 22 degrees Baume between depths of 3,200 and 4,400 feet. Bottom water has been encountered in some of the wells drilled below 4,300 feet southeast of Nineteenth Street, and it is possible that cross faulting may be present in this vicinity.

Production Statistics

The Huntington Beach Field has had two approximately equal peaks. The first peak was reached in the spring and summer of 1923 with a production in the neighborhood of 105,000 bbls. per day. The field then declined to a low mark of 40,591 average daily bbls. for the month of November, 1924. A gradual recovery was then made to 45,000 daily, and it remained around this figure for nearly two years.

In October, 1926, production began to skyrocket as a result of drilling in the small area mapped, which had recently been released from restrictions, and a second peak for the field in the neighborhood of 105,000 bbls. was reached January 1, 1927. The total production of oil at Huntington Beach to and including December 31, 1926, was by the best available figures 100,576,761 bbls.

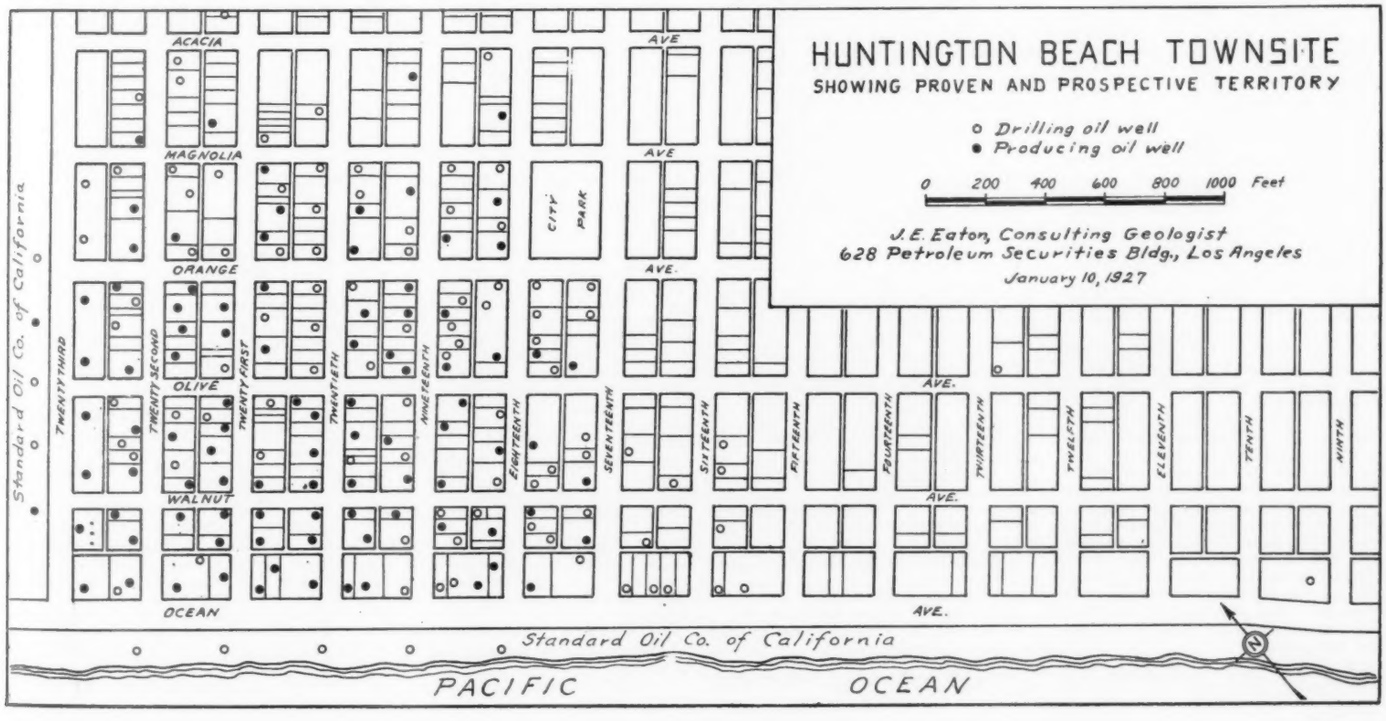
Future Possibilities

The undrilled proven and potentially productive territory of the field, not counting probable production from under the ocean, is estimated by the writer to be at this time in the neighborhood of 1,200 acres, or something more than one-third

(Continued on Page 79)

[1] See L. P. Stockman, The Oil and Gas Journal of December 16, 1925, p. 55.

[2] J. E. Eaton, "A Contribution to the Geology of Los Angeles Basin, California," Bull. Amer. Assoc. Petrol. Geol., Vol. 10, No. 8, August, 1926.



Fractionation in Petroleum Refining

Development of Present Equipment at Refineries and Natural Gasoline Plants Has Been Gradual. Many Mistaken Ideas

By George A. Burrell*
Consulting Chemical Engineer, Pittsburgh, Pa.

C. L. Smith states that in present "hook-ups" of tube stills and towers in refineries we have fractional condensation and countercurrent scrubbing, whereas in the old shell stills we had fractional distillation. This is not theoretically sound, and although the point is an academic one probably I would like to discuss the general subject. Rectification is the best term to describe what takes place in each case And in each case we have distillation, condensation and countercurrent scrubbing. Modern refinery towers simply rectify better than older towers.

The refining industry is passing through a transition stage in its distillation methods. One finds batch shell stills with poor towers, batch shell stills with good towers, continuous shell stills with good and poor towers, shell stills hooked up with tube stills and a system of towers, tube stills with one, two or three towers, several cuts taken from one tower, or one cut from each tower, etc. The refiner is learning about good rectification and is trying all sorts of combinations the meanwhile.

It seems to me Mr. Smith's practice follows good rectification principles so far as one can scrutinize his design without actually working with the apparatus. He has a bubbling device somewhat different than ordinary bubble caps.

Start of Rectification

Rectification really started with the Coffey still in 1832. Distillers wanted whisky of higher alcoholic content so they resorted to column rectification. By rectification is meant the countercurrent flow of ascending vapors and descending liquid in a suitably packed column, preferably plates and caps, whereby the liquid in condensing gives up its latent heat of condensation to vaporize an equivalent amount of liquid. Vaporization and condensation is taking place all the way up the column (countless distillations) so that finally there appears at the top of the column the more volatile component freed of the less volatile one, which is withdrawn at the base. For good rectification suitable temperatures must be employed at the top and base of the column, a certain amount of reflux is returned to the column and there must be a minimum gain or loss of heat to or from the column. Velocities and capacities must be suitable.

The Coffey still met all conditions of good rectification of today except that reflux of the same composition as the overhead cut was not returned to the column.

It finally remained for Sorel and Barbet (Frenchmen) in the nineties to establish practically and mathematically the principles of good rectification. Hausbrand in Germany was also active. Sorel's mathematics for binary mixtures, later simplified by W. K. Lewis, are used today. Nothing basic in rectification has been added since that time except Linde's masterful work at low temperatures, in 1905, in separating the constituents of the atmosphere.

Henry Rogers, of Standard Oil Co. fame, patented in 1871, a bubble tower for separating petroleum distillates. His only fault was that, like Coffey, he didn't handle his reflux correctly. Herman Frasch, in 1906, patented his stripping still and tower for removing gasoline from kerosene. Columns of today add nothing novel over that apparatus. Other rectification columns have been used, praticularly on the continent for fractionating petroleum. The coal gas art has long used them for securing benzol, toluol and zylol cuts.

*Presented at New York meeting, A. I. M. E., February 14-17, 1927.

PRINCIPLES OF RECTIFICATION

Following are the essential features of efficient rectification in oil refining:

Intimate contact in a column between vapor and liquid.

Suitable velocities.

Suitable temperature, at the top and bottom of the column.

Minimum gain or loss of heat to or from the column, i.e., the column should be lagged. Heat for all vaporization is put into the base of the column, and it should be conserved as much as possible.

Return of reflux to the column best obtained by cooling the top of the tower. Not by pumping reflux back. In the ideal column distillation and refluxing takes place all the way up the column with just the right temperature gradiant from bottom to top. In that event there is no need for an artifical temperature drop at the top and return of reflux therein. But this subjects the column to fluctuating weather conditions. Hence the tower is shortened somewhat, the temperature gradient is sharper, accurate temperature control is maintained and reflux is reurned to the column.

Oil should be put into the columns at a point where the composition of the oil inside the column is of the same composition as the oil being put in, and reflux of the same composition as the overhead cut should be returned to the column. The same is true of oil introduced at any particular plate.

For highest column efficiency only two cuts should be taken from a tower; the overhead cut and the base cut. In column operation a definite temperature gradient establishes itself in the column. The composition of the fluid on a particular plate is definite and different from that on any other plate. Taking off cuts or introducing oil indiscriminately disturbs these conditions. If this is done the column makes an attempt to adjust itself but at the expense of efficiency.

The only reason that more refiners have not used them sooner is because the demand for them was not pressing. Other and cheaper columns, or no column at all, satisfied them. As soon as the public determined that they wanted more gasoline many were installed. Just like in the older days the public wanted more alcohol in their whiskey and the Coffey still was used. Of course refiners could have used efficient columns sooner than they did. However, usually we only do those things which economic necessity forces us to do. Europe continually scolds us, for instance, because we are lavish with our natural resources. Once they were not so economical. Some day, I suppose, we will have to economize more.

Most older columns in the refining industry employed fractional condensation with a little rectification. Some rectification occurs in every still, of course. No matter how sharply the vapor line slopes away from the still there will be some reflux back to the still and from the upper cooler portion of the still. But under such conditions the amount of rectification obtained is negligible and of no moment.

One can, of course, get just as sharp separation by fractional condensation as by means of the best rectification column, but the work is tedious. Too many redistillations and condensations have to be made, hence the refiner contented himself with rerunning a time or two and let it go at that. In a Pennsylvania refinery 200 per cent rerun was common a few years ago. Now with good columns only about 80 per cent rerun is necessary and capacities go up, cuts are sharper (less gasoline in the kerosene and less kerosene in the gas oil) fuel goes down, labor saved, etc.

One can have, and does see in a refinery, all sorts of fractionating devices, from practically no rectification of past days to bubble columns of today. The only way one can get no rectification at all is by having the top of the still and column hotter than the distilling fluid in the bottom of the still. Then there can be no reflux.

Development of Columns

Efficient columns of today in refineries arrived through all sorts of fractionating devices. Just a sloping pipe from the still, then columns of all kinds; filled with rocks and other fillings, baffle plates, sieve plates, etc. Towers like the Van Dyke, Gray and Van Tilburg towers have been extensively used. These were mainly fractional condensation towers. Old-type towers through their inefficiency have cost the refiner millions of dollars in rerunning and other costs. But the same can be said of much "out of date" equipment in all arts.

The sieve plate probably stands next to the bubble column for sharp separation. But it is unsatisfactory because a column has to be worked under uniform conditions to get good results. If the tower is worked too fast, liquid is blown off the plates; if too slow the plates empty themselves.

Rather recently good packed fillings have appeared like the Raschig, Leesing and Breaget fillings. The function of a filling is to distribute the vapor and liquid uniformly through the column, bring the two in intimate contact in a minimum of space and break the fluids up into fine particles. The bubble column does this very well.

Bubble Column Misnomer

The term bubble column, by the way, is a misnomer. Bubbling is a poor way to get contact. The interior of the bubble does not get this contact. If one will observe a bubble plate section in action (through glass) he will see the liquid thrown practically all off the plate, and into a fine spray, at the velocities ordinarily used, say 2 feet per second. Here

(Continued on Page 161)

OIL WELL CORROSION CAUSES AND METHODS OF PREVENTION

By R. Van A. Mills*
Petroleum Engineer, United States Bureau of Mines, Bartlesville, Okla.

A large part of the corrosion troubles that are now harassing operators in oil fields could have been prevented, at only nominal cost, if protection against the corrosion of well equipment had been properly established when the wells were first drilled and equipped. To wait until corrosion troubles develop in an oil or gas field is a good deal like waiting until an army develops a typhoid epidemic before applying inoculation against the disease.

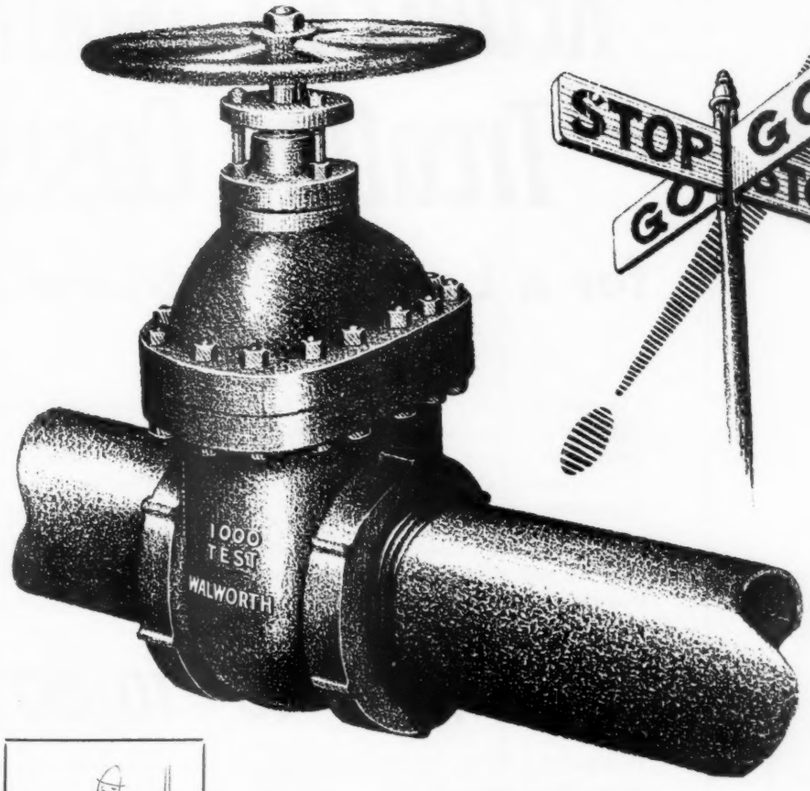
Damage From Corrosion

The damage from corrosion in oil and gas wells may be outlined briefly as follows:

1. Destruction of equipment:
a. Casing.
b. Tubing.
c. Sucker rods.
d. Working barrels.
e. Pump plungers, valves and cups.
f. Screen pipe.
2. Admission of water and silt into the wells.
a. Through holes corroded in casing.
b. Through collapsed and broken casing that has been weakened by corrosion.
3. Development of water troubles.
a. Excessive amounts of water to pump.
b. Emulsification of water with oil and silt.
c. Deposition of mineral salts from water in wells.
d. Drowning of the wells.
4. Damage to oil and gas sands.
a. Flooding of sands by water leaking in through corroded casing.
b. Plugging of sand pores by mineral matter deposited from infiltrating water.
c. Mudding and sealing of the sands by fine silty products of corrosion which coat the walls of the hole or even penetrate and plug the pores of the sands.
d. Plugging of the sands and mudding of the walls of the wells by emulsions of oil with water and silt.
5. Development of bad mechanical conditions in the hole.
a. Obstruction of the hole by corroded tubing, sucker rods, and other pumping equipment that has been dropped in the hole and cannot be removed readily.
b. Obstruction of the hole by parted, collapsed or telescoped casing that has been weakened by corrosion.
c. Damage to casing, so that tubing being run into the hole hangs up or even sidetracks outside of the casing.
d. Obstruction of tubing and casing by incrustations of mineral salts and products of corrosion deposited from water.
e. Development of conditions that render it impossible to plug abandoned wells properly.
6. Interference with pumping operations.
a. Sanding up of working barrels by muddy and granular products of corrosion.
b. Fouling of equipment by mineral scale deposited from water, and by scaly products of corrosion that adhere to tubing, sucker rods, valves and working barrels.
c. Fouling of pumping equipment by emulsions of oil with water and silt.
d. Abrasion of the working parts of

(Continued on Page 156)

*Presented at New York meeting, A. I. M. E., February 14-17, 1927.



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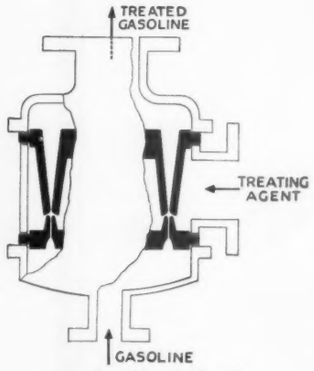

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PETROLEUM APPLIANCE COMPANY

PEAK OF HUNTINGTON BEACH FIELD PAST

(Continued from Page 75)

of the final developed area. In this connection it should be remembered that it is the more favorable parts of the field which have been most developed, and that much of this remaining territory has inferior productive measures or has been so drained by adjoining development that it may never be closely drilled. When thus qualified, the undeveloped acreage is indicated to represent but a minor fraction of the total ultimate production.

The great bulk of the reserves is controlled by the Standard Oil Co. of California in large blocks. The undrilled acreage of this company, exclusive of minor inside locations, may be divided into three portions. These are several hundred acres in the southeast corner of the field having heavy oil possibilities; a territory more centrally located which is partly surrounded by production; and an untested area northwest of present development which from its position, proximity to producing wells, and probable basinward dip and plunge is indicated to have distinct possibilities. These blocks are more or less protected by line wells from competitive drainage, and constitute a reserve which cannot be accurately measured, but which can hardly be less than many millions of barrels.

The flush townsite area (see map) should decline materially in the near future, but the large sand thickness will probably result in the wells being substantial pumpers after the brief flowing period. In current appraisals the writer is placing a higher value upon the average well of this area than he had occasion to do in similarly congested districts such as the Los Cerritos extension at Long Beach.

It appears unlikely that Huntington Beach will again rise to past heights. A slow development of the large reserves in its older portions should, however, result in a daily production in the neighborhood of 55,000 bbls. for several years after the current excitement subsides.

The recent peak at Huntington Beach arrived a little too soon to sustain the yield of California until Seal Beach becomes an important contributor, and the state total may show further slight declines pending the latter event. The writer does not anticipate any large change in the production of California during the present year unless new townlot fields are discovered. A possible new area at Cypress is at this time a disturbing factor, and tests now drilling in this vicinity will probably decide whether the production of California is to have a slight upward or downward trend during the latter part of 1927.

EASTERN FIELDS

(Continued from Page 62)

southeast Ohio fields have completed in a number of weeks.

In Section 5, same county, Bishop, Hazlett & Co. completed No. 7 on the Martha Gutridge farm, not good for more than 4 bbls. a day in the Berea grit. In Licking Township, same county, in Section 9, Norvell & Patton completed a test on the Rebecca Jury farm. It is a duster in the Berea grit.

Fair Producer in Knox County

In the southeast quarter of Section 21, Butler Township, Knox County, the Ohio Fuel Supply Co.'s test, on the A. J. Beatty farm, is completed and shot in the Clinton sand. It produced 60 bbls. the first 24 hours. In the north central part of Section 25, Sutton Township, Meigs County, the Pure Oil Co. has started to drill a second test on the Melvin Paulin farm. In Section 4, Bowling Green Township, Licking County, C. H. Zilk and others have started to drill a test on the Hugh Cooperrider farm. In the northwest quarter of Section 2, Washington Township, Hocking County, the Ohio Fuel Supply Co. has drilled into the Clinton sand its No. 3 on the Carl C. Harden farm. They swabbed 56 bbls. the first 24 hours. In Section 14, same township, the Gordon Oil Co. completed in the same formation No. 14 on the James Noble farm. It is a 10-bbl. pumper.

In Section 4, Jackson Township, Perry County, Griggs, Kessling and others have completed in the Clinton sand a test on the Elmer Housegolder farm, not good for more than 10 bbls. a day.

Holmes County

The East Ohio Gas Co.'s second test, on the A. E. Patterson farm, in Section 12, Killbuck Township, Holmes County, is a gasser in the Clinton sand good for 500,000 feet. It has also a good showing of oil. In Section 8 and 7, Cambridge Township, Guernsey County, George E. Jewell and others are drilling tests on the Emmett Ewers and John Vincent farms. The Eastern Carbon Black Co. has a rig up on the John A. Vessels farm.

In the northeast quarter of Section 19, Harrison Township, Perry County, the Pure Oil Co. has completed in the Clinton sand its test on the T. H. Brown farm. No oil was developed, but it has a gas pressure estimated at 4,000,000 feet. The Ohio Fuel Supply Co. has connected to the well and is taking the gas.

In Sections 6 and 1, Killbuck Township, Holmes County, the Kemrow Company is drilling tests on the L. B. Mohler and Lloyd Sandles farms. In Section 13, Monroe Township, the Ohio Fuel Gas Co. is due in the sand at a test on the Valentine Close farm. In Section 39, Hardy Township, the East Ohio Gas Co. is drilling on the Etta J. Nowalls farm. In Section 6, Paint Township, the Ohio Fuel Gas Co. is drilling in the sand on the Isaac J. Miller farm. In Adams Township, Guernsey County, locations have been made for tests on the L. M. Keller, Thomas Mitchell, John B. Ruby, M. Donley and A. E. Cleland farms. In Jackson Township, Section 6, the Ohio Fuel Supply Co. has a rig up on the Lenora J. Fulton farm. The same company is drilling a second test on the J. R. Fulton farm. In Westland Township, locations have been made on the James H. Abrams, J. H. Wycoff and Toby Coppers farm. In Section 18, Adams Township, the Ohio Oil Co.'s second test, on the George A. Mehaffey farm, is a gasser in the Niagara lime. In Section 12, Westland Township, the same company is due in the sand at a test on the Benjamin B. Gibson farm.

Coshocton County

In Section 1, Jefferson Township, Coshocton County, the Logan Gas Co. has a duster at a test on the John B. Foster farm. In the same township tests are drilling on the Markley, Nyhart and Lapley farms. In Jefferson Township, Knox County, the Upham Gas Co.'s test, on the George Swingle farm, is a duster. The same company is drilling a test on the George W. Sapp farm. In Section 25, Richland Township, Holmes County, the Reno Oil Co. is drilling another test on the Keyser heirs' farm.

In Section 12, Killbuck Township, Holmes County, the East Ohio Gas Co. has started to drill a test on the F. H. and L. E. Garver farm. In Section 13, Hardy Township, the Kemrow company has the rig completed for a second test on the Louisa Conn farm. In Section 24, Paint Township, the Logan Gas Co. has a rig up on the J. P. Miller farm.

Southwest Pennsylvania

One mile north of Wilmerding, Patton Township, Allegheny County, the Morse Oil & Gas Co., McKeesport parties, drilled a well on the Behr-Bunack farm into the Elizabeth sand to a depth of 2,618 feet and reported good for 100 bbls. a day. The well flowed 150 bbls. the first 24 hours after drilled into the pay. The nearest production is the Unity Pool, 6 miles south of the new well. The well filled two 100-bbl. tanks and another half full. The well is of some interest for the reason it got its production in the Elizabeth sand, not previously regarded a reliable producing formation.

In Aleppo Township, Greene County, the Manufacturers Light & Heat Co. has a gasser in the Big Injun sand at a test on the A. A. Jones farm. In Richland Township, same county, the Natural Gas Co. of West Virginia has a gasser in the Dunkard sand at a second test on the James McDermott farm. In the same

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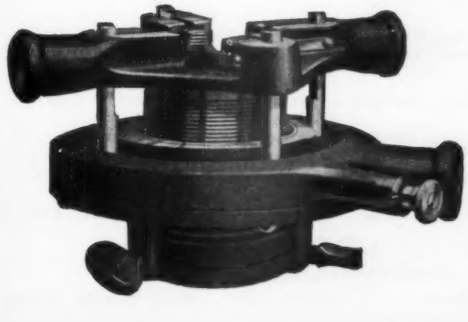

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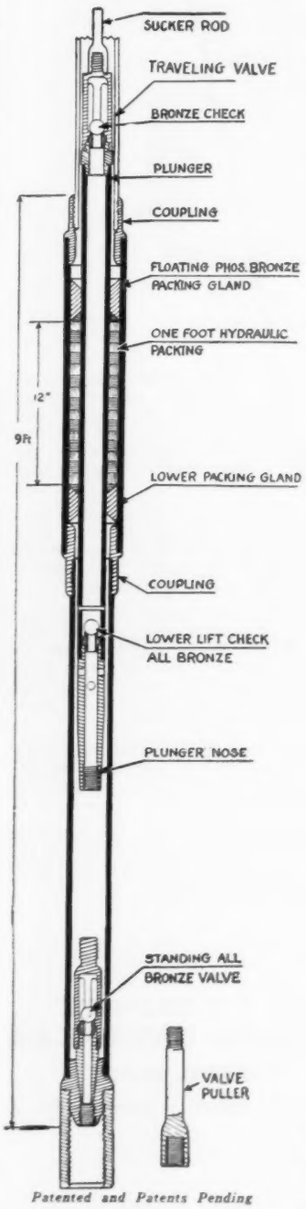

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township, Filby and others have a duster at No. 3 on the Mary Ann Goodwin farm.

In Aleppo Township, the Manufacturers Light & Heat Co. has a light gasser in the Bayard sand at a test on the Garfield Jones farm. In the old Duff City Field, Allegheny County, the Boyd Oil Co.'s No. 4, on the Hamilton farm, is a light pumper in the Snee sand. In the McDonald Field, Allegheny County, R. C. Chesney's test, on the Lelia J. Chesney farm, is a light pumper in the 100 and 30-foot sands. In Springhill Township, Greene County, Kinney heirs and others have a light pumper at a test on the J. H. Kinney farm.

In Morris Township, Washington County, the Manufacturers Light & Heat Co. has completed in the Gordon sand its No. 3 on the Hugh Day farm, good for 50 bbls. a day.

MICHIGAN FIELDS

(Continued from Page 62)

This company now has seven strings of drilling tools in the field, and will add an additional five, making an even dozen strings, which will be the largest number of any concern operating in the field; and the other concern, the Saginaw Prospecting Co., has several strings running. The Sun company will keep its tools going steadily on its large acreage in Saginaw County; and while it has many leases outside the defined field, it also holds many leases on the inside. This company is now starting the deepening of its small stripper on the Ferdinand Stelzridge property, in the northeast quarter of Section 11, and will test out the lower Saginaw sand. The string of 6-inch casing will be pulled, and the hole reamed down, and the casing will be set below the Saginaw sand. This company is nearing the sand with No. 2 on the Dr. D. E. Bradshaw farm, on the Bay Road, a half mile north of the Shattuck Road, in the northeast quarter of Section 10, Saginaw Township, and located 705 feet west of No. 1 on the same farm. Same company is drilling No. 6 John Schoenteit property, Section 11; No. 2 Nuerminger, and No. 2 John Stelzriede. This company is starting a second test on the Rabe property, in the NE of the SW, Section 11, Saginaw Township.

Plan Field Records

First action toward assembling records and data concerning the operations in the Saginaw Field has been announced by the Saginaw Oil Operators' Association, which has authorized a standard form for gathering and filing permanent statistics about the wells. Five hundred copies of the form have been mimeographed for distribution among the operators. The form was drawn by Waldo H. Neumann, secretary of the association, with the assistance of seven experienced oil men, and is believed to provide for all necessary information. In addition, it is ruled and calibrated, so that with a minimum of effort a chart may be made of the daily progress of the well.

Pertaining to the well itself, the following information will be contained on the form: The company, well number, county, contractor, date started, date completed, township, section, date shot, number of quarts of glycerin used, depth at which shot, altitude, production. Then there also will be the casing record, showing at what depth various sizes of tube were used, and the exact location of the well is charted.

The association is considering this method of uniform record for the individual operators, so a duplicate copy can be filed at the association headquarters without discrepancies likely to arise where different recording systems are used about the field.

Assessment of Michigan Crude Oil

Guy H. Jenkins of Lansing reports on the assessment of crude oil in Michigan, as follows: "Oil wells in the Saginaw oil field will be assessed for taxation purposes on the basis of the gross yearly production (in dollars and cents) less the royalties paid by the well owners to property owners on leases.

"This agreement was reached in a conference of Saginaw oil prospectors, with George M. Lord, chairman of the State Tax Commission, and Charles Spindler, city assessor of Saginaw. The percentage of the assessed valuation to be charged in taxes will be fixed by City Assessor Spindler and the supervisors of Carrollton and Saginaw Townships, because practically all the existing wells in Saginaw County are located either in the city or in those townships.

Chairman Lord of the State Tax Commission will have prepared a bill to be submitted to the legislature, providing for this manner of assessment of oil wells, and the State's project of a specific tax on the annual production of oil wells will be dropped."

Notes of the Field

A very interesting wildcat is about due in the sand: the Superior Oil Co.'s test on the bank of Saginaw River, between the Sixth Street bridge and the Pere Marquette Railroad. Shou'd this well prove a commercial producer, it will add a large area to the present producing area.

Great Lakes Oil Co.'s No. 1 on a community lease on Pleasant Street, near Hermansau Street, is nearing the Berea sand. Star Oil Co.'s well on Benjamine Street, south of Weiss Street, is also nearing pay depth.

William Mertz and others are nearing the sand with a well on a community lease near the Michigan Central Railroad, and 600 feet north of the W. B. Mershon plat.

Schwinck Oil Co.'s well on the Sperling property, on North Michigan Avenue, near the Pere Marquette Railroad, is down near the Marshall sand. The Atlas Oil Co. is near the Marshall sand at a well on the Davenport property, at Davenport Street and Michigan Central Railroad.

The salt water well of the Saval Development Co. at Birch Run, in Birch Run Township, Saginaw County, and southeast of the city some few miles, is being pumped, and there is a noticeable increase in the oil showing; and when the water has been got the best of, it may make a small pumper. At least, this well shows the way for a prospective field, as the oil showing was found in the Berea sand at a much shallower depth than in the field to the north of the city.

The Fordney Petroleum Co. is starting its second well on the Ace Park ball grounds, the well being drilled in the southwest corner of the plat. This company's well on the Nelson-Nowack property, at Michigan and Weiss Streets, is down around 1,000 feet, and No. 1 on the community lease at Clark and Eddy Streets is drilling around 500 feet.

Contractor Charles P. Brant, an old-time Indianapolis operator, is starting a well for the K. & M. Oil Co. on the J. C. Reed property, on Reed Street, and is also starting another for the same company on the John Sliva property at Deindorfer and Charles Streets.

William Bradley & Son are down close around 1,200 feet with No. 1 on the Phil Britton property, at Pleasants and Stone Streets.

Edward Bourdow and others are drilling No. 1 on the E. Burdwon property, at Clark and Michigan Avenue. V. M. Vorhees is the contractor.

A well is being started by the J. & S. Development Co. on a community lease at Clark and Schaefer Streets. Saginaw Prospecting Co. is drilling a second well on the Mershon Vinyard property on Weiss Street. Same company is starting a well on the George Griebel property, along the Shattuck Road west of Hermansau Road.

Crescent Oil Co. is starting a well on the Fred Chesebrough and others property, at Clark and Hill Streets. William Bradley & Son are starting a well on the Clarence Clark and others property, at Clark and Hanchett Streets.

The Ohio Oil Co. is starting its No. 4 on the Mershon-Eddy-Parker Lumber Mill property, in Carrollton Township, just north of the Pere Marquette Railroad, and will be an offset to the Saginaw Prospecting Co.'s No. 1 on the Mershon Vinyard property, also drilling No. 1 on Oakley Street, near Pleasant Street.

The Red Oil & Development Co., Saginaw, Mich., with a capital of $50,000, has filed articles of incorporation, and expect to do some development in the Saginaw Field.

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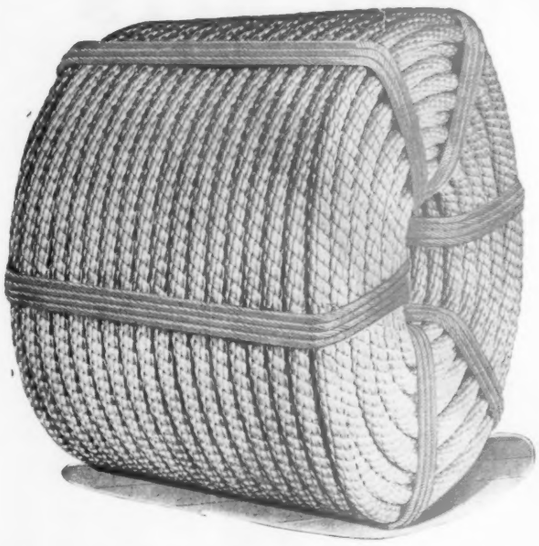

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FIRST OIL MAN CHOSEN PRESIDENT OF A. I. M. E.

(Continued from Page 72)

studies, appraisals and practical oil field operation in many fields in the Mid-Continent and Gulf Coast regions, and was the first to bring the torsion balance and seismograph from Europe into the Gulf Coast fields for use in the location of salt domes.

Mr. DeGolyer is one of the youngest men to hold the office of president of the American Institute of Mining and Metallurgical Engineers. He is 40 years old, and has been a vice president of the society for six years. Born in Greensburg, Kans., his parents moved to Joplin, Mo., soon after his birth, and his

F. JULIUS FOHS
New Vice President, A. I. M. E.

inclinations toward the study of engineering were early apparent in his interest in the chat piles and zinc fields nearby. He graduated from the University of Oklahoma in 1911, although most of the work required for graduation he completed by 1909. He entered geological practice in 1907, when he became field assistant for the United States Geological Survey in Wyoming. He investigated coal bearing lands of Montana, North Dakota, Colorado and Oklahoma. His services in Mexico began in 1909 when he became geologist for the Mexican Eagle Oil Co.

Mr. DeGolyer located the famous Potrero del Llano No. 4 well, one of the largest in Mexico which produced probably close of 90,000,000 bbls. of oil, and also the discovery well in the Naranjos Pool. In 1914 he became chief geologist of the company, which then was controlled by Lord Cowdray.

In 1919 he organized the Amerada Petroleum Corp. and became its vice president and general manager. Last year he was elected president of the company. He is vice president and general manager of the Rycade corporation and the Rycade Oil Corp., and president of the Geophysical Research Corp.

The honorary degree of doctor of science was conferred on Mr. DeGolyer by the Colorado School of Mines in 1925. He has contributed to the progress of technical and social organizations. He is president of the American Association of Petroleum Geologists, director of the American Institute of Mining and Engineers; fellow, American Association for the Advancement of Science; member, Society of Economic Geologists, British Institution of Petroleum Technologists and New York Academy of Science. He is on the membership roll of the Engineers Club and Bankers Club of New York and the Cosmos Club of Washington.

Mr. Fohs' Career

F. Julius Fohs, the other representative of the petroleum industry on the executive staff of the American Institute of Mining and Metallurgical Engineers, has geen identified with the discovery of several important fields in the United States and has contributed widely to the advancement and extension of activity of the petroleum technology. Mr. Fohs has been actively identified with the Humphreys-Fohs group of oil companies since 1914. He is consulting geologist and vice president of the Humphreys Corp., Olean Petroleum Co. and Red Bank Oil Co.

Mr. Fohs was born in New York City in 1884, and when he was a boy his parents moved to Marion, Ky. He became interested in geology through youthful curiosity excited by the fossil beds less than a mile from Marion and by lead and zinc activities in the vicinity. He was educated in Marion schools, studied geology from books he was able to procure and later took a postgraduate course at Columbia University, New York.

It is of interest that last year Mr. Fohs gave to the town of his boyhood a high school, which is known as the Fohs Hall of Marion High School and which combines the functions of a high school, town library, auditorium and gymnasium. The hall was given by Mr. and Mrs. Fohs in honor of Mr. Fohs' parents.

Mr. Fohs was mine superintendent in Kentucky in 1901, field assistant geologist of the United States Geological Survey in 1902, engineer in charge of mines in Kentucky from 1902 to 1905, and assistant state geologist of Kentucky from 1906 to 1908. During this time his reports, including "Flourspar Deposits of Kentucky" and "Barytes and Calcite Deposits of Kentucky," were published and recognized as among the most complete works of their kind.

He specialized in oil geology, beginning in 1912, and the following year opened an office in Tulsa, Okla., in association with James H Gardner. This association continued until 1915. Mr. Fohs, in addition to his discovery of the Mexia-Powell line fields in Texas, is credited with the discovery of the Blackwell and North Billings and South Billings Fields in Oklahoma, and the Big Muddy Field in Wyoming. An interesting feature of these discoveries is that they were accomplished by planning location before doing field work; that is, studying out the possibilities of the field before field recon-

JOHN M. LOVEJOY
Chairman, Petroleum Division

naisance, and all together Mr. Fohs is credited with recommending in advance of development 50 oil and gas pools in this country.

In 1919 Mr. Fohs investigated the oil possibilities of Palestine for the Zionist organization and the British colonial office. Although a non-Zionist, he undertook this service with the understanding that his services would be contributed.

Mr. Fohs has expanded the activities of the petroleum division of the American Institute of Mining and Metallurgical Engineers to embrace all branches of petroleum engineering and the importance of the division has been greatly

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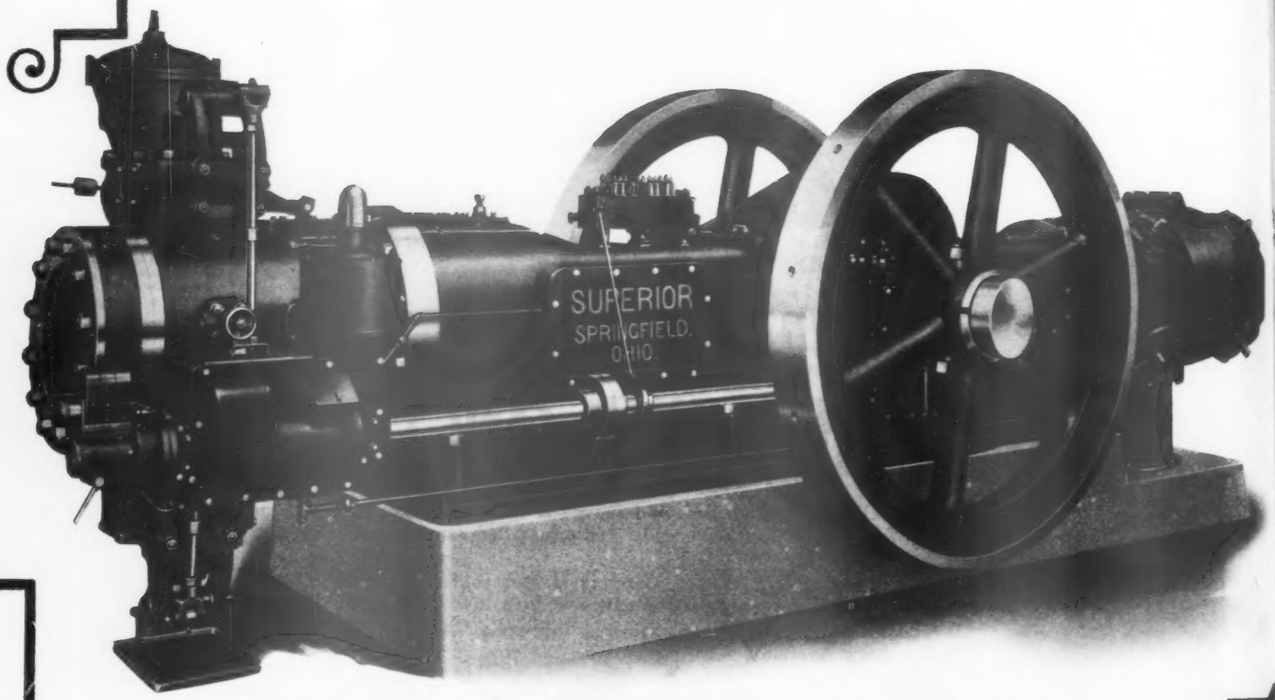

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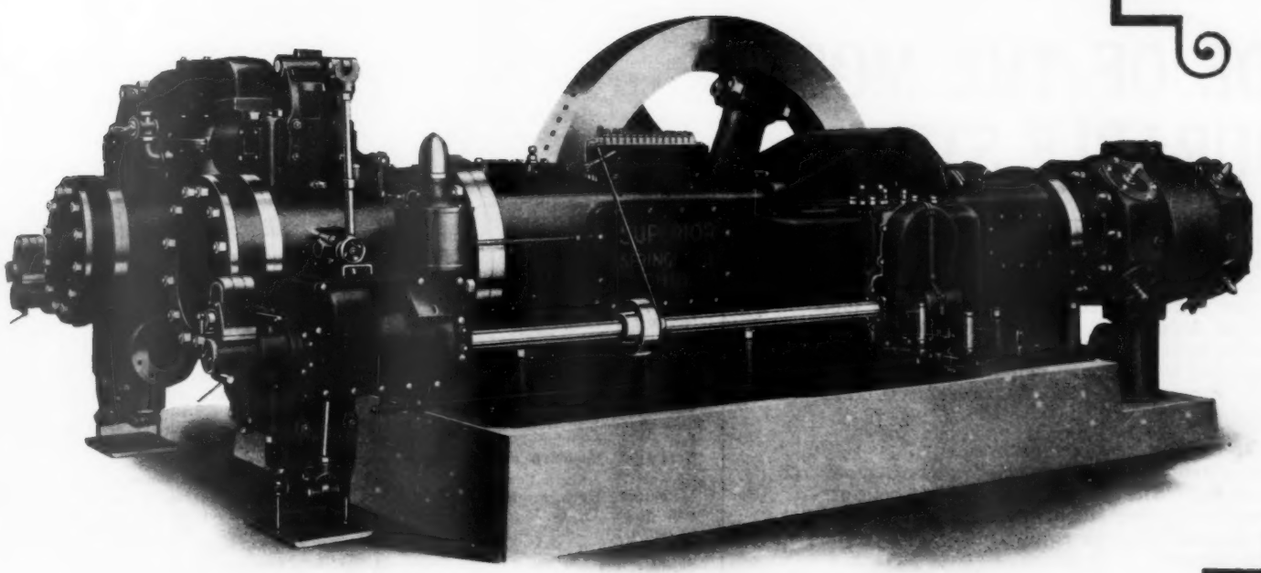

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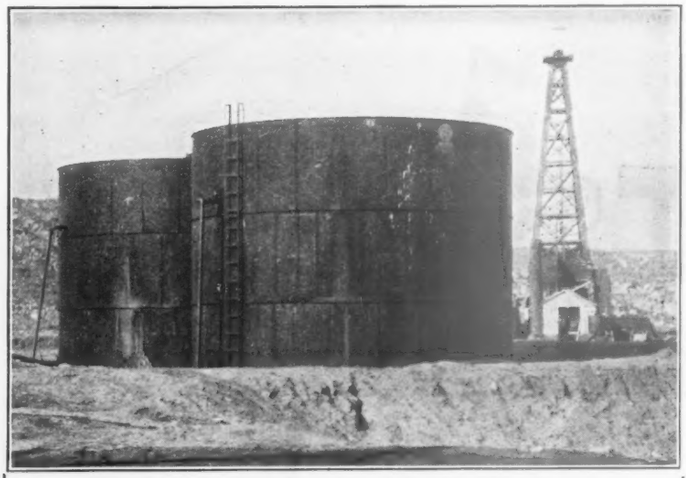

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enhanced during his two years of leadership. He is a fellow, Geological Society of America, New York Academy of Sciences and American Geographical Society; member, American Association of Petroleum Geologists, British Institution of Petroleum Technologists and American Association for the Advancement of Science, Bankers Club of New York and University Club of Dallas.

SOUTHWEST WILDCATS

(Continued from Page 51)

Singer, Survey 4, located 550 feet south of No. 10, setting casing at 1,447 feet; No. 2 Dilworth, Survey 120, located 2,350 feet to west line and 1,000 feet to south line, is drilling at 280 feet. Humble-Reiter-Foster's No. 3 Kohler, Survey 144, located 1,320 feet to south and west lines, tested salt water at 1,787 feet, and is deepening; No. 4 Kohler, Survey 400, located 660 feet to south and west lines, is in gumbo at 1,165 feet. H. B. Schlesinger's, trustee, No. 1 Hahl, Survey 76, located 660 feet to north and west lines, is testing through Halliburton tester at 2,475 feet. Hoffer-Smith's No. 1 King, Block 10, W. R. King ranch, located 1,320 feet to north and west lines, is drilling at 2,000 feet. Magnolia Petroleum Co.'s No. 1 Hahl, Survey 51, located 330 feet to south and west lines, is coring at 3,040 feet; derrick is up for No. 1 Hayes, in Survey 332, at 200 feet to east and south lines.

Jim Hogg County

Magnolia Petroleum Co.'s No. 17 Merchants State Bank, in Survey 236, just north of the new pool discovered by Alworth Brothers in Survey 39, is drilling at 1,039-41 feet in sand. Harvey-Maddox's No. 1 M. Garcia, in Survey 281, Block 5, northwest of the Alworth discovery well, tested small amount of oil and water at 1,051 feet, and is deepening. Trussell-Cezeaux-Putnam's No. 1 Palacious, Survey 232, Block 2, located 150 feet to north and west lines, is shut down at 1,467 feet. Hale and others' No. 1 Palacious has been taken over by Jones and others in Share 27, Block 136, at 330 feet to north and east lines, and well has been spudded in. The Texas Company is making location in Survey 579 for the No. 1 Vela. Roxana Petroleum Corp.'s No. 1 Vela, Survey 579, Share 3, is drilling at 1,810 feet. Hamilton and others have spudded in No. 1 Holbien, Block 44, Hamilton Subdivision, Agua Arriba Nueva, R. Holbien tract.

Starr County

Southern Exploration Co.'s No. 2 Russell, Share 173-B, Porcion 69, 150 feet to north line and 950 feet to west line, has spudded in. Simms-Magnolia's No. 1 Salinas, Porcion 80 and 81, Block 6, Share 38-C, is drilling at 2,950 feet. T. C. Hadley and others' No. 1 M. M. Garcia, Survey 538, located 2,722 feet to south line and 2,102 feet to west line, has set 10-inch casing at 64 feet. Milham Corp.'s No. 1 Guerra, Porcion 107, has received pipe for water line. It is shut down at 50 feet (previous report error); No. 2 Salinas, Porcion 111, SE cor., is drilling at 110 feet; No. 1 Salinas, Survey 9, SE cor., is drilling at 2,200 feet. Alfred M. Letzeich's No. 1 H. Gonzales, Survey 339, Block "M," located 1,215 feet to north line and 1,110 feet to west line, is getting ready to rig up. Sterling & Suladie's No. 1 Yzaguirre, Block 8, Sterling & Suladie Subdivision, is drilling at 1,500 feet.

Webb County

Edward St. Albans' No. 1 Puig, St. Albans Puig ranch, Albercas grant, located near the well recently brought in by the Straight Eight Oil Co. (which made about 16 bbls. of oil from total depth of 1,857 feet), is drilling at 1,600 feet. Alexander and others' No. 1 Moglia, Survey 670, located 150 feet to north line and 600 feet to east line, is drilling deeper. Cresswell-Fallin's No. 1 Gates, Survey 17, Leaseholders Pool, is drilling at 2,525 feet. W. O. Wheatley and other's No. 2 Kruger, Survey 1,570, Block 4, Reiser Pool, is drilling at 1,660 feet. Henne, Winch & Killam's No. 1 Billings, NE SW Survey 43, located 150 feet to northwest lines, tested salt water at 2,913 feet, and is plugging back to test at 1,960 feet. Ellis and others' No. 1 R. Benavides, Survey 112, north of the Reiser Pool, located 1,170 feet to south and west lines, is drilling at 1,700 feet.

Zapata County

Mission Oil Co.'s No. 1 Slator, Borego Survey, Block 16, is drilling at 200 feet, with surface casing set at 180 feet. Buffalo Eric Syndicate has derrick up for No. 3 Martinez, Villa Grant, 5,000 feet to east line and 416 feet to south line. The Texas Company has spudded in No. 4 Jennings, Cerritor Blanco grant, and just south of the gasser brought in last week by the Magnolia in Survey 245, which tested 18,000,000 feet of gas, total depth 1,340 feet. Harlingen Oil & Gas Co. is drilling on its No. 3; the No. 1, in Patent 151, was abandoned dry, and No. 2 completed a small oil well at shallow depth.

Atascosa County

Frontier Oil Co.'s No. 8 Hopkins, NW corner of lease, is drilling at 1,365 feet.

Bexar County

Schimmel Petroleum Co. has made location for No. 4 Limon, Survey 266-272, located 500 feet southeast of No. 2. A. R. Beall and others are moving in rig for No. 1 Ackerman, 2 miles east of city limits of San Antonio, one-fourth miles north of the St. Hedwig Road on the White Road. W. L. McClanahan's No. 3 Sodrok, in eastern Bexar County, is drilling.

Bastrop County

Johnson Brothers' No. 3 Trigg, northeast of Lytton Springs, is rigging up. Neal A. Nelson's No. 1 Arthur Naumann, Buckner Creek, 5 miles south of Smithville, is shut down at 1,100 feet.

Bee County

Nichols & White's No. 1 Hicks, Block 19, NW corner, Hicks-Ball Survey, is drilling at 260 feet.

Brooks County

Ballard & Underwood and Kone Production Co. has temporarily abandoned No. 2 Lasater, Survey 349, located 150 feet to north line and 200 feet to east line.

Brewster County

Green Valley Oil Co. has received nitroglycerin and will shoot No. 3 Wilson, 50 miles south of Alpine.

Burleson County

Caldwell-Oliphant Oil Co.'s No. 3 Hilliard-Lewis is drilling at 1,300 feet; No. 1 Geisenschlog, Survey 1, Block 1, located 150 feet to south line and 800 feet to east line, is drilling at 1,300 feet. E. F. Gordon's test in the north part of the county on Bowers & Bowers' tract is moving to new location.

Caldwell County

L. I. Dodwell's No. 1 Lawler, James Pinchback Survey, is ready to spud in. Smith & Sutton's No. 1 Robert W. Carter, 5 miles north of Luling on Plum Creek, has put on rock bit at 60 feet. Flynne Brothers' No. 1 Carter, 4 miles south of Lytton Springs, is drilling at 2,050 feet. John Storey's No. 1 Jeffreys, south of Dale, cored Taylor Marl at 2,220 feet.

DeWitt County

McNeil & Mathews' No. 1 Kaiser, 1,800 feet to west and south lines of Kaiser farm, has derrick up and moving in boilers and rig from Luling. Louis P. Schawe is ready to spud in No. 1 Gohmert. Empire Southern Oil Co.'s No. 1 C. G. Smith, 8 miles southwest of Cuero, is drilling at 2,412 feet.

Dimmitt County

Humble Oil & Refining Co.'s No. 1 City National Bank, Survey 654, located 700 feet to north line and 2,000 feet to east line, is drilling.

Frio County

P. A. Neilan's No. 1 Blackaller, James Gouley Survey, is fishing for casing, and if recovered will test at 2,800 feet.

Fayette County

George W. Zeigin's No. 1 Rosa Russekk, East Anderson League, 1 mile northwest of Schulenberg, is shut down at 2,514 feet.

Gonzales County

Bristol Oil & Gas Co. is erecting rig for No. 2 Denman, A. Zymwalt Survey, 1 mile southwest of Ottine. John W. Hoosier's No. 1 Harris, 7½ miles from Waelder, is drilling at 1,602 feet. Kercheval Production Co.'s No. 2 Billings, 3 miles southeast of Smiley, is erecting derrick. Martin Oil & Development Co.'s No. 1 Preston, near Cheapside, is wait-

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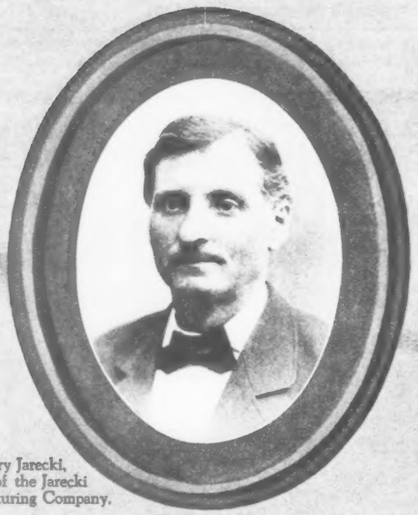

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ing on casing. E. Lee Moore's No. 1 Elder is testing. Joe Bruner's No. 1 Vaughan, Kent Survey, north edge of Waelder, is fishing. C. A. Campen's No. 1 Lamkin, 2½ miles from Waelder, is drilling at 2,250 feet.

Guadalupe County

F. G. Blumberg's No. 1 Angelke, H. Cottle Survey, Block 7 and 8, located 450 feet to northeast lines and 184 feet to northwest lines, has resumed drilling and will go to the Edwards lime. J. M. Davis' No. 1 Weinert, John B. Cowan Survey, at 1,910 feet, has 50 to 60 feet of Edwards, which is soft and dry, which will be cored before well is abandoned. F. A. Lain's No. 1 Weinert, W. K. Estell Survey, located 150 feet to center of north line, has derrick up and preparing to spud in.

Karnes County

Earl B. Reynold's No. 2 Butler, Block 43, located 1,000 feet south of No. 1, is bailing 1½ bbls. of oil daily at 1,947 feet.

Kerr County

Walker-Van Duyn's No. 1 Leigh, Survey 38, located 500 feet north of river and 150 feet south of railroad, is drilling at 1,140 feet.

LaSalle County

De Lange, Eiser Development Co.'s No. 1 Dobie (fee), Survey 102, located 600 feet to east line and 1,800 feet to south line, is drilling at 2,520 feet in Mt. Selman sandy shale.

Lavaca County

Steinman Brothers' No. 2 Steinman (fee), located 4 miles southeast of Yoakum, is drilling at 800 feet.

Lee County

Plunkett and others' No. 1 Adolph Wachemann, Thomas Kinney League, three-fourths mile west of Monheim, is shut down.

Live Oak County

Houston Oil Co.'s No. 2 Sellers, J. McMullen Survey, 2,453 feet east of No. 1, is drilling; No. 1 Brown Land & Cattle Co., M. B. Kivlin Survey, is setting 10-inch casing at 1,600 feet. Henderson & Coquat's No. 5 Sartain is resetting surface casing at 120 feet. J. W. Walton's No. 1 Roberts, west of Three Rivers, is drilling at 1,210 feet. W. G. Clark's No. 1 Adair, J. McGloin Survey, 600 feet to south line and 5,100 feet east of Nueces River, is drilling at 2,030 feet.

Medina County

F. L. Williams' No. 1 John Fohn, Survey 115, located 300 feet to south line and 175 feet to east line of east 100 acres, is to spud in at once. Medina Oil Co.'s No. 10 Taylor, at 208 feet, got showing of oil, and is drilling deeper. Johnson's No. 1 Mumme, Survey 100, is at 800 feet, and expects to deepen. Ralph R. Lewis and others' No. 1 Kellar, Survey 8, located 150 feet to center of north line, topped Edwards at 2,258 feet, dry. Alamo Drilling & Leasing Co.'s No. 1 Kenedy, Survey 412, is coring. Ina Oil Co.'s No. 1 Charles Fingers, Survey 746, is drilling at 1,650 feet. Cecil Switzer's No. 1 Zerr, Survey 459, is drilling at 2,500 feet. J. S. Wheless-E. P. Peters' No. 1 Anton Berger, Survey 341, is drilling at 200 feet.

Maverick County

Rycade Oil Co. has rotary rig almost erected over No. 1 Chittim, and in case the lost tools can not be fished out they will mill them out; No. 2 Sullivan is drilling below 2,900 feet.

McMullen County

Dodson and others' No. 1 Franklin, SW Survey 31, is drilling at 1,100 feet. George M. Ball's No. 1 Kuykendall, Block 7, G. C. & S. F. Ry. Survey, is shut down at 1,390 feet. Arkansas Natural Gas Co.'s No. 2 Franklin has set liner at 2,700 feet.

Travis County

Cypress Creek Drilling Association's No. 1 J. D. Romberg, has been abandoned at 1,365 feet.

Wilson County

Thomas and others' No. 1 Aug. Haese, 1 mile south of Carpenter, is fishing at 780 feet. Gibson Oil Corp.'s No. 1 Julius Espey, Arocha Grant, is shut down at 1,380 feet.

CALIFORNIA FIELDS

(Continued from Page 56)

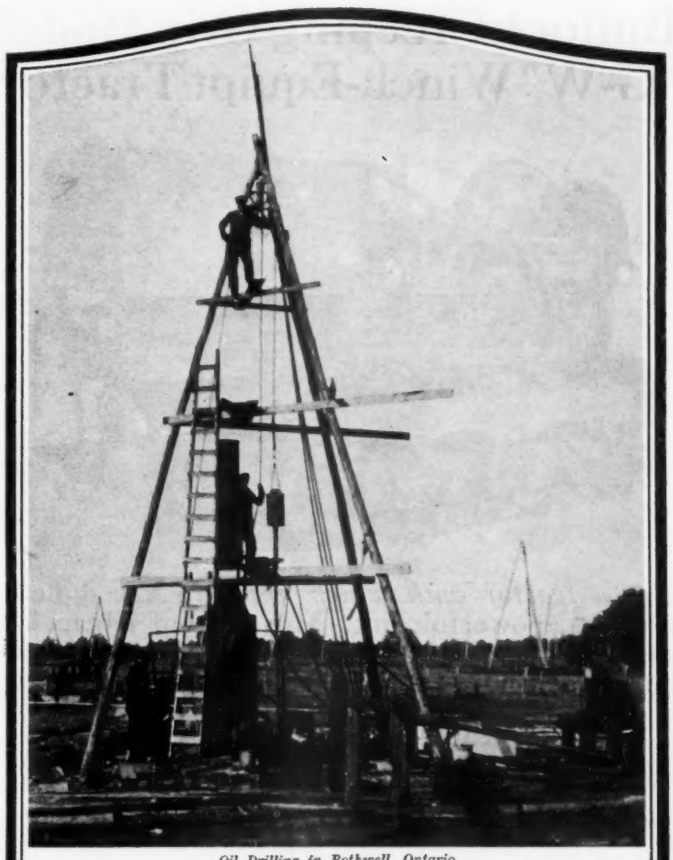
considered a cessation of operations and the operator will be obliged to abandon the hole and remove all equipment unless, of course, there are extenuating circumstances. The proposed ordinance now under preparation for an early submission to the City Council is a most drastic one but from an unprejudiced standpoint it looks as though it is a step in the right direction since it will protect legitimate operators. Some opposition may possibly develop, particularly from some of the larger companies where the erection of numerous derricks might run into real money, but it looks like this will prove less costly in the long run. Over in the northwest extension of the Long Beach Field operators have been forced to construct a pipeline in order to dispose of refuse oil and sump water, the cost being borne by an assessment against each rig. So far this has run about $200 per derrick and although the line recently put in use can handle additional refuse some operators have consistently refused to become parties to this mutual agreement. Unless they adopt some other remedial measures it appears quite likely that the City Council will take steps to force them to take some action toward curbing unnecessary accumulation of refuse oil and water.

Huntington Beach

The Standard was by far the most successful operator in the town lot section of the Huntington Beach Field during the past week, as that company put five wells on production. The company's most successful producer was No. 1 Huntington, a recompletion after being redrilled and deepened to 4,340 feet. This rejuvenated well, which was finished with a 6⅝-inch oil string carrying 745 feet of perforated, came in flowing through a ½-inch bean under a pressure of 1,050 pounds. The initial tank gauge was 1,410 bbls. of exceptionally clean 24.9 gravity oil daily. No. 21 Huntington, a new well, also in the town lot section, was an exceptionally small producer as it was only good for 98 bbls. of 22.1 gravity oil daily from 4,277 feet. No. 23 on the same lease was even smaller as it was good for only 50 bbls. daily when put on the beam at 4,317 feet. No. 1 Heffner was a much better producer than either No. 21 or No. 23 as it is pumping 285 bbls. of 22.3 gravity oil daily from 3,840 feet, the hole having been plugged back from 3,886. No. 22 Huntington was the shallowest and smallest well finished by the Standard. It was put on a pumping test at 2,114 feet after being plugged back from 2,149 feet and it is doing 14 bbls. of 13.8 gravity oil daily. This is the third well in the town lot area to be given a test at this shallow depth and, while the small production attained is probably not commercially profitable at present, it may be possible to produce from this depth in later years when the price of oil advances. The Standard has two more wells which give promise of coming into production during the next 10 days and one, No. 3 Pacific Electric, should be good for a fairly large yield. No. 1 on this lease, finished two weeks ago, is holding up remarkably well at 2,295 bbls. and is the largest producer in the Huntington Beach Field at present.

The California Petroleum followed the Standard from a completion standpoint but none of the company's three new wells finished was of any consequence as they were all comparatively small producers. No. 1 McLachlen, drilled to 4,396 feet and finished with a 6¼-inch oil string, including 840 feet of 80-mesh screen, is doing 178 bbls. of 21.6 gravity oil daily. No. 1 fee is pumping 88 bbls. of dirty 21.2 gravity oil daily from 4,350 feet, the hole having been finished with a 6¼-inch liner and 3,408 feet of 2½-inch tubing. No. 1 Brockman, the deepest of these three new wells, registered the smallest initial as it is pumping only 85 bbls. from 4,400 feet, the hole being finished with a 6¼-inch oil string carrying 1,007 feet of perforated. Preparations are being made to put No. 1 McLachlen and No. 1 Brockman on compressors. The California Petroleum's next completion in this field should be No. 3 fee, a new well which is looking exceptionally good at 4,310 feet.

The largest well finished during the week was No. 1 Stein of the U. S. Roy-



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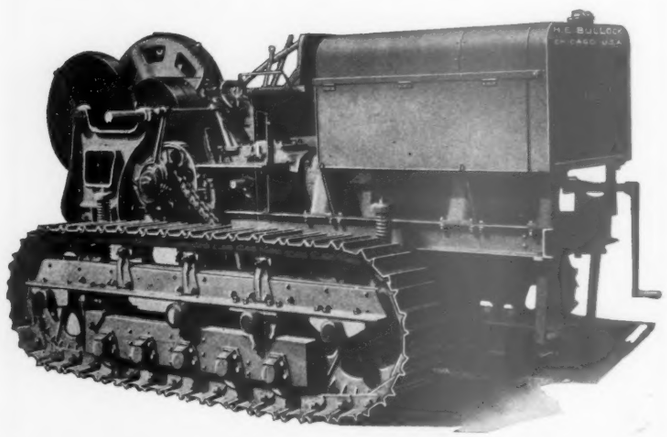

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" " " " LOW " : " - 8000 " - 7000

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PULLEY SHAFT	630	665		
WINCH DRIVING SHAFT - HIGH	170	180		
- LOW	120	128		
WINCH - HIGH 1.	97.5	103	455 FT/min	3000
2.	69	73	325 "	4250
LOW 1.	23	24.5	109 "	13300
2.	16.2	17.25	765 "	17,600
REVERSE 1.	23			
2.	16.2			

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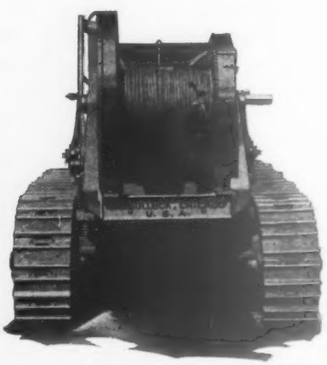

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alties, which was returned to production after being cleaned out to bottom, 4,395 feet, from which depth it is flowing 430 bbls. of 23.7 gravity oil daily. Wilcox & Hudson's No. 1 Huntington, a new well drilled to 4,406 feet and finished with a 4¾-inch liner carrying 215 feet of perforated, resulted in a 258-bbl. pumper upon completion, the oil testing 22.9 degrees and showing a cut of 1 per cent. The Richfield Oil Co.'s No. 1 Dike registered an initial pumping of 165 bbls. of rather low gravity oil from 3,805 feet, the hole being finished with a 6¼-inch perforated liner. No. 2 Abel Huntington of the Ahlburg Gasoline Co. failed to make good on a preliminary production test at 4,386 feet and as a consequence it was put on a compressor with the result that it is making 152 bbls. of 22.1 gravity oil daily. This company has two more wells nearing completion and they should be followed by several more now being drilled.

Paul Getty's No. 3 Huntington, completed at 4,350 feet, and No. 4, drilled to 4,300 feet, did not come in under a natural flow and both will be put on compressors. Fred Roberts finished his second successful producer in the town lot area when No. 2 Wilhoit Huntington was brought in flowing 405 bbls. of clean 21.9 gravity oil daily from 4,346 feet. The Petroleum Securities also brought in a new well in the extension as a result of the completion of No. 1 Doyle, which was put on the beam at 4,393 feet. It started off pumping 165 bbls. of 21.4 gravity oil daily. Two recompletions were added later in the week, one by the Julian Petroleum and the other by the Huntington Signal Oil Co. The former's No. 1 Lambert, with the hole junked below 4,071 feet, was brought in pumping 220 bbls. daily from that point. The Huntington Signal Oil Co. recompleted No. 5 Huntington after redrilling and deepening to 4,400 feet. It is now pumping 185 bbls. daily, as compared with 520 bbls. daily when originally completed early in January at 4,300 feet.

The San Martinez Oil Co. has not yet drilled out in its outpost on Ninth Street, several blocks east of production, but notwithstanding three or four new wells are getting under way principally as a result of the shallow sand encountered by the San Martinez. These companies, working on the assumption that there should be a lower sand if the upper has already been picked up, should finish construction work on their respective rigs during the next few days. The Biltmore has a rig going up near Tenth Street, while the Concord Oil Co. has material on ground for a rig between Thirteenth and Fourteenth Streets. The Superior is starting work near Fifteenth Street, while the Julian Petroleum recently staked two locations in the immediate vicinity. Rains during the past few days have held up work but this will only be of a temporary nature.

Seal Beach

The Standard finished one new well in the Seal Beach Field and, judging by the status of the company's other projects, will probably bring in two more within 15 days. The Standard's latest acquisition was No. 5 San Gabriel, which registered an initial production of 1,225 bbls. daily, the oil testing 22.6 degrees and showing a cut of 2 per cent. This new well, finished at 4,468 feet, is flowing through a 23/32-inch bean under a pressure of 750 pounds. The Marland picked up the deep sand on the Selover lease in No. 3 at 4,730 feet and a string of 8¼-inch has just been landed. No. 4, the only other drilling project on this property at present, has just passed the 4,250-foot level but, since it is possible to make rapid footage, this well may come into production before the close of February. Four new rigs are standing on the Selover lease and it is likely one or more will be utilized within a few weeks. On the Bixby lease the Marland has several wells under way and since three are already below the 4,000-foot level, the company should increase its daily production substantially as a result of their completion in the near future. The Associated's deepest hole in this field at present is No. 3 Bryant, which at 4,150 feet gives evidence of resulting in early completion. The company also has three other drillers on this property and one on the Hellman lease, No. 2, now down 3,220 feet.

Ventur

The Ventura Avenue Field was extended another 1,500 feet eastward early in the past week when the Associated's No. 1 Ventura Land & Water blew in barefooted doing 2,336 bbls. of clean 29.6 gravity oil daily from 5,997 feet. The well which is open between 5,349 feet and bottom is flowing under a pressure of 400 pounds and is making a little less than 1,000,000 feet of wet gas in addition to the oil output. The completion of this new producer proves up some additional acreage, probably in excess of 250 acres, and will no doubt result in additional drilling to the east as the outcome was exceedingly gratifying. The Associated's next completion should be No. 19 Lloyd now down 6,355 feet and barring the development of mechanical trouble this hole should be tanking oil within three weeks.

The General Petroleum has just finished No. 11 Notten at 6,220 feet but as it is just getting under way no accurate tank gauge is available. If the initial production is maintained it will be listed for completion somewhere around 2,000 bbls. daily and with approximately 1,450 feet of oil sand from which to draw, the indications are good for a relatively long life. On the Barnard lease, the General Petroleum has several immediate potential producers in Nos. 2, 5-A and 8 which are all showing exceptionally good. G. J. Magenheimer spudded in his No. 1-A Hartman a few days ago following the loss of 3,737 feet of hole in his first attempt due to mechanical trouble and with the McKeon Drilling Co. doing the present work the completion of this hole seems practically assured, barring, of course, any unforeseen difficulties.

Shell to Complete Several

The Shell will probably step out and complete several new wells in this prolific field during the next 30 days unless something turns up at the last minute, as the company has No. 6 Edison down 5,484 feet, No. 13 Edison at 6,012 feet, No. 12 Gosnell at 5,831 feet and No. 15 Taylor rotating ahead at 5,656 feet. All are in proven territory and it appears quite likely that No. 13 Edison will be listed for completion within a few days as it was being given a preliminary test this morning. The Bolsa Chica Oil Co. is also making good progress in its two present drillers and while it will probably be some time before No. 3 Hartman comes into production, No. 2 should be finished within 30 days as it is already down 5,200 feet. This company brought in its first producer several months ago and it is still holding up to around 750 bbls. daily.

The filing of a suit recently by the guardians of the estate of T. B. Gosnell against Ralph B. Lloyd and the Lloyd Corp. to recover title to oil rights and all moneys the defendants have received to date indicates the tremendous increase in the value of acreage since the development of oil in this area. The suit is probably one of the largest filed in Ventura County in recent years involving as it does title to the oil rights of one of the most productive pieces of land in the Ventura Avenue Field at present. The plaintiffs allege that Mr. Lloyd in June, 1925, induced T. B. Gosnell, then 76 years of age, to sell him the oil rights for a consideration of $72,000 through misrepresentation by intimating that salt water was encroaching into the oil sands and that the Shell was as a result contemplating abandoning work in the field. Mr. Gosnell was later adjudged to be of unsound mind and mentally incompetent to manage his affairs and it is upon this basis the present suit is filed. As evidence of the value of the oil rights the plaintiffs allege the Lloyd Corp. has already received in excess of $367,000 and that this figure is being added to each month at the rate of $30,000.

Long Beach

The Signal Syndicate's No. 17 Feath-

"Seminole is calling you, Mr. Brown"

"Hello, Brown, Production Superintendent speaking . . . Who . . . ? . . . oh, yes, Bill . . . you say you have another fishing job on the Blank well . . . what seems to be the trouble now? . . . h'mm . . . casing elevator dropped the casing again, did it? . . . pulled off the coupling? . . . well, there's only one think to do now, Bill . . . and the sooner the better . . . call the supply house and have them deliver a Bovaird Grip Casing Elevator . . . meanwhile fish out the casing and throw away your present elevator . . . it has caused more damage than it is worth . . . all right . . . good-bye"

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erstone-Preston was the largest of the trio of new wells finished in the Long Beach Field and, as a result of the success attained, the company is making preparations for an early spud in No. 18. This new well just finished registered an initial of 530 bbls. daily from 3,230 feet after being plugged back from 3,245 feet, the oil testing 23.1 degrees and showing a cut of 2 per cent. A. T. Jergins, one of the best-known operators in the Long Beach Field, added another new producer to his list by completing No. 21 Municipal, and this well, which was carried down to 3,554 feet and finished with a 6¼-inch perforated liner, is pumping 290 bbls. of relatively clean 25.8 gravity oil daily. The B. & H. Oil Co. finished its second new well in this field and incidentally increased its production 240 bbls. daily through the instrumentality of No. 2 Bess, drilled to 4,950 feet and finished with a 6¼-inch liner, 628 feet of which was shop perforated. Several of the new wells and deepening projects being carried down to the lower zone are approaching the point at which production should be secured soon and some should begin coming into production within a few weeks. Their completion may result in a slight increase in the total field production, depending, of course, upon the interval between each completion. The Richfield Oil Co.'s No. 11 Haas at 5,115 feet looks like an early completion, although the Bush-Voorhies Oil Co.'s No. 2 Graham may precede it into production. The Julian Petroleum is rotating ahead in No. 6 Marine at 4,520 feet and, although Macmillan & Campbell's No. 1 is held up with a fishing job at 5,050 feet, the delay in the latter is believed to be only of a temporary nature. Graham & Loftus are making exceptionally fast footage in No. 2, a recent spud scheduled for the lower zone, as is also the Shell in No. 7 Cresson, now down 3,410 feet.

Dominguez

The Shell and Union each completed a new well in the Dominguez Field, the aggregate initial production being 1,151 bbls. The Shell was the largest contributor with a 706-bbl. producer resulting in the completion of No. 36 Reyes which is flowing clean 29.7 gravity oil from 3,614 feet. No. 37 Reyes was recently supdded and, since the rig has been completed for No. 38, drilling on this hole will more than likely be started within two or three weeks. The Union's No. 15 Callender, drilled to 4,364 feet and finished with a 6¼-inch liner, including 400 feet of 120-mesh screen, is flowing 445 bbls. of clean 29.5 gravity oil daily. The Union has two additional drillers on this property, No. 16 at 4,328 feet and No. 17 at 4,035 feet, in addition to No. 15 Hellman, only recently spudded in but already down 1,200 feet.

The Big Five Oil Co. concluded its present drilling program in the Rosecrans Field by bringing in No. 4 Wright, flowing 230 bbls. of clean 38.6 gravity oil daily from 4,037 feet. The Union's deep test, No. 4 Trust, in the southern part of this field, is making as good progress as can be expected considering the company is coring frequently and checking each sample carefully. This hole, while it has had a few encouraging showings, has not yet found a sand capable of yielding commercial production. The bottom of the hole is 6,076 feet and another core sample will be taken at this point. The General Petroleum has put a cement plug in No. 5 Vaughn, bringing the bottom of the hole up from 4,023 feet to 3,985 feet, and it will be given another production test soon.

Fullerton

The General Petroleum finished another new producer, No. 7-A Tonner, in the Brea Olinda area early in the week and, while the well did not record a large flow, it was nevertheless a satisfactory completion. It is doing 290 bbls. of clean 26.8 gravity oil daily from 3,480 feet and, since the production seems to be building up somewhat it may result in a much larger well after it has been on production for several days longer. The company only has one other armer, No. 8-A Tonner, a recent spud in this field, but is running four strings of tools in the Richfield district where several large flowing wells were recently completed. In the latter area the company has just brought in No. 9 Stern, a new well at 4,598 feet, the hole having been finished with a 5¾-inch oil string carrying 315 feet of 100-mesh. A compressor was installed following completion, with the result that the production was boosted from 125 bbls. daily to 360 bbls. per day. The Union is concentrating its activities on the Stern, Thompson & Goodwin and one or two other leases at Richfield, although the company is also running several additional strings at Brea Olinda. The Shell, not having any acreage at Richfield, is naturally offsetting this deficiency by additional drilling at Brea, where it has experienced considerable success during the past several months.

The Continental Oil Co. is working on three holes at Richfield and, while the Chanslor-Canfield Midway interests have only two drilling projects under way in this area at present, two additional rigs are going up for early work. The California Petroleum spudded in No. 13 Consolidated a few days ago and brought its number of drilling wells in this field up to three. The Associated, Chiksan, E. L. Craigen and several other operators are running from one to three strings of tools each. The Standard redrilled and deepened No. 6 on Kraemer lease No. 2 at 4,750 feet, and it is doing 195 bbls. of 21.2 gravity oil daily under compression. The Pan American is at present bailing No. 1 Chancorina in the Rideout Heights section of the old Whittier Field and as some promising indications were noted at 3,400 feet, the outcome will be watched with interest as it may result in additional work if commercial production is secured.

Southern California Wildcats

Prospecting work in southern California during the past year has been confined more or less to a few potential areas, as most operators are of the opinion that unrestricted and haphazard wildcatting is not justified or warranted because most of the fields opened up in this area up to the present are located along definite lines and bear a certain relationship to each other. On account of this condition present wildcat operations at Bandini, northwest of Santa Fe Springs, and in the Potrero area, situated between the Rosecrans and Inglewood Fields, are of particular importance because these are logical points for new fields based on the continuity and regular sequence of other fields to the north and south. The Torrance district is the only one out of line and in this connection it is interesting to note that the Petroleum Securities has decided to make another attempt to open up a new field at Palos Verdes, in this section, notwithstanding that several dry holes have already been drilled. The Weston ranch, on which the Union Oil Co. has already drilled a duster, has been selected as the site of the first test and material will be on the ground soon. The Petroleum Securities has several hundred acres under lease in this district and the company's new wildcat, which will be spudded in shortly, is approximately 1 mile northwest of No. 1 Narbonne, which this concern abandoned as a duster last year. The company's latest test, No. 1 Weston, is about 500 feet southeast of the Harbor Crude Oil Co.'s old wildcat, which was abandoned at the too shallow depth of 3,965 feet. Conditions are favorable for the accumulation of petroleum along the Palos Verdes fault.

George W. Johnson is scheduled to make a production test of his No. 1 Wickham in the Newhall-Saugus area within a few days and, since core samples indicated the existence of approximately 10 feet of sand, he will no doubt make it a conclusive one. The Marland was the first to log an oil sand in this area, and although the company spent considerable time and made every effort, it did not succeed in developing commercial production due to water trouble. The Smith Petroleum resumed drilling in its Lawndale test following the failure to develop production at 5,653 feet and the additional hole opened up is re-

(Continued on Page 114)

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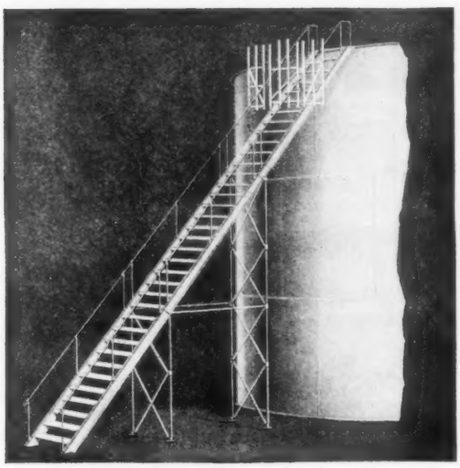

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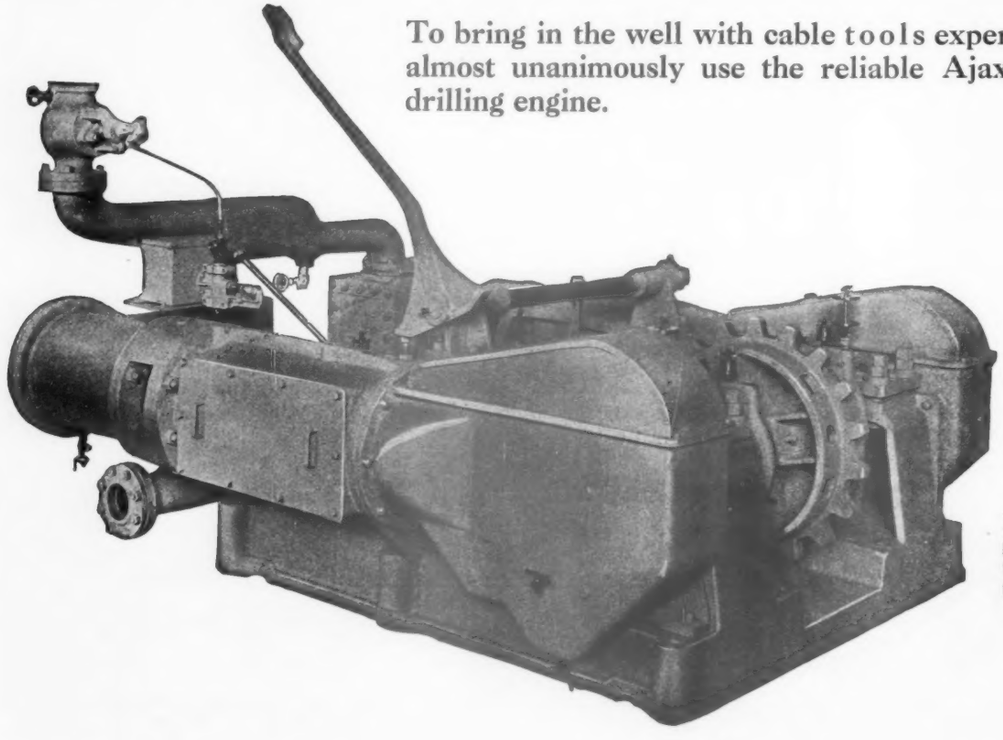

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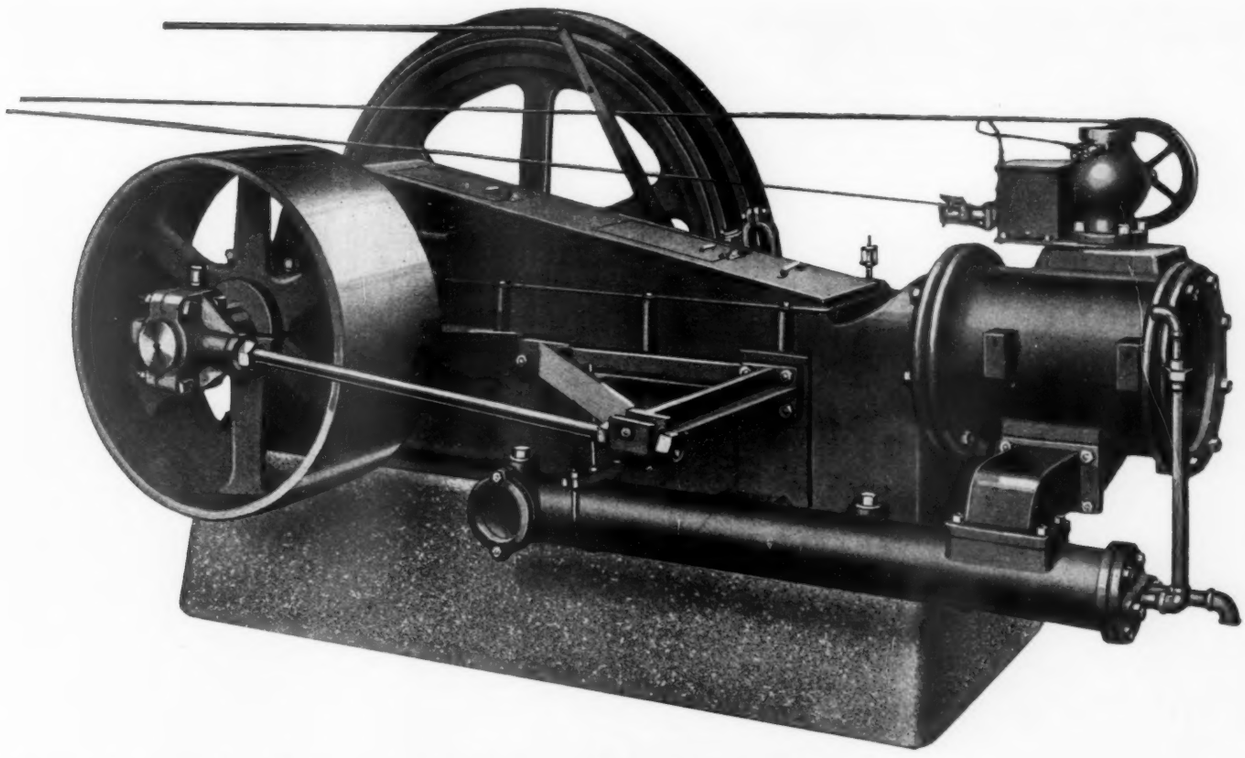

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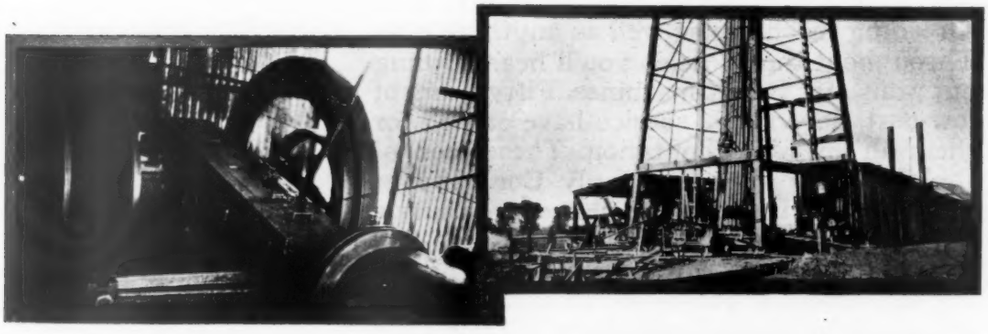
Marland Oil Co. well in Hubbard Pool, 8 miles north of Tonkawa. This rig also set 4240 ft. of 8¼" casing north of Billings. Engine, Ideal-Ajax 12x12 Twin. Contractors Prunty & Gladuex. Drilled in with Ajax (Single) 13x14 Enclosed Type.



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Result of Operations on Gulf Coast

Two Fields in Texas and Three in Louisiana Obtain Production for First Time. New Salt Domes

By Sidney A. Judson*
Geologist, Humphreys Corp., Houston, Texas

Three salt domes were located in 1926 in the Gulf Coast by geophysical methods, and the presence of cap rock on these was proved by drilling. Cap rock was hit on one salt dome already foretold in 1925 by the torsion balance.

In all, 1,011 tests were drilled during 1926, of which 615 or 61 per cent were oil wells; 41 or 4 per cent were gas wells and 355 or 35 per cent were dry holes.

Two fields in Texas and three in Louisiana obtained commercial production for the first time. New flank pools were discovered or previous pools were extended on 11 producing fields in Texas and one in Louisiana. One gas field in Texas secured important development.

The discoveries of 1926 bring the number of salt domes in the Gulf Coast of Texas to a total of 35, eight of which have been discovered by geophysical methods. There are also three oil fields and these gas fields of structural type. The Gulf Coast of Louisiana is credited with 17 salt domes, two of which have been located by the aid of the seismograph. In addition it has four oil fields and one gas field of probable structural type. The positions of these fields are shown on the accompanying maps.

*Presented at New York meeting A. I. M. E. February 14-17, 1927.

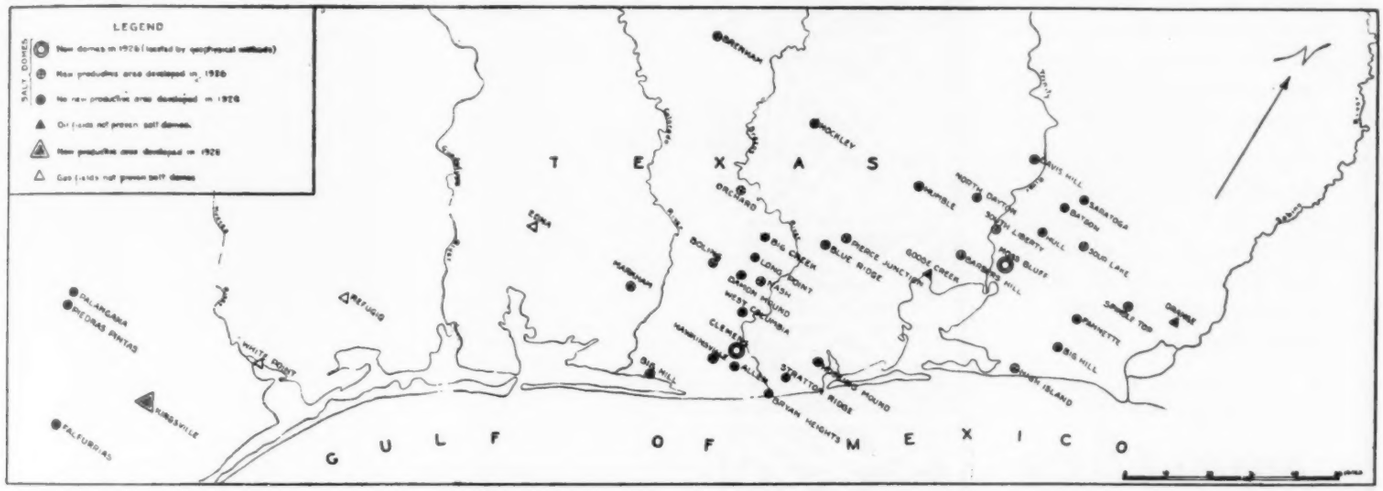
Salt Domes Discovered During 1926

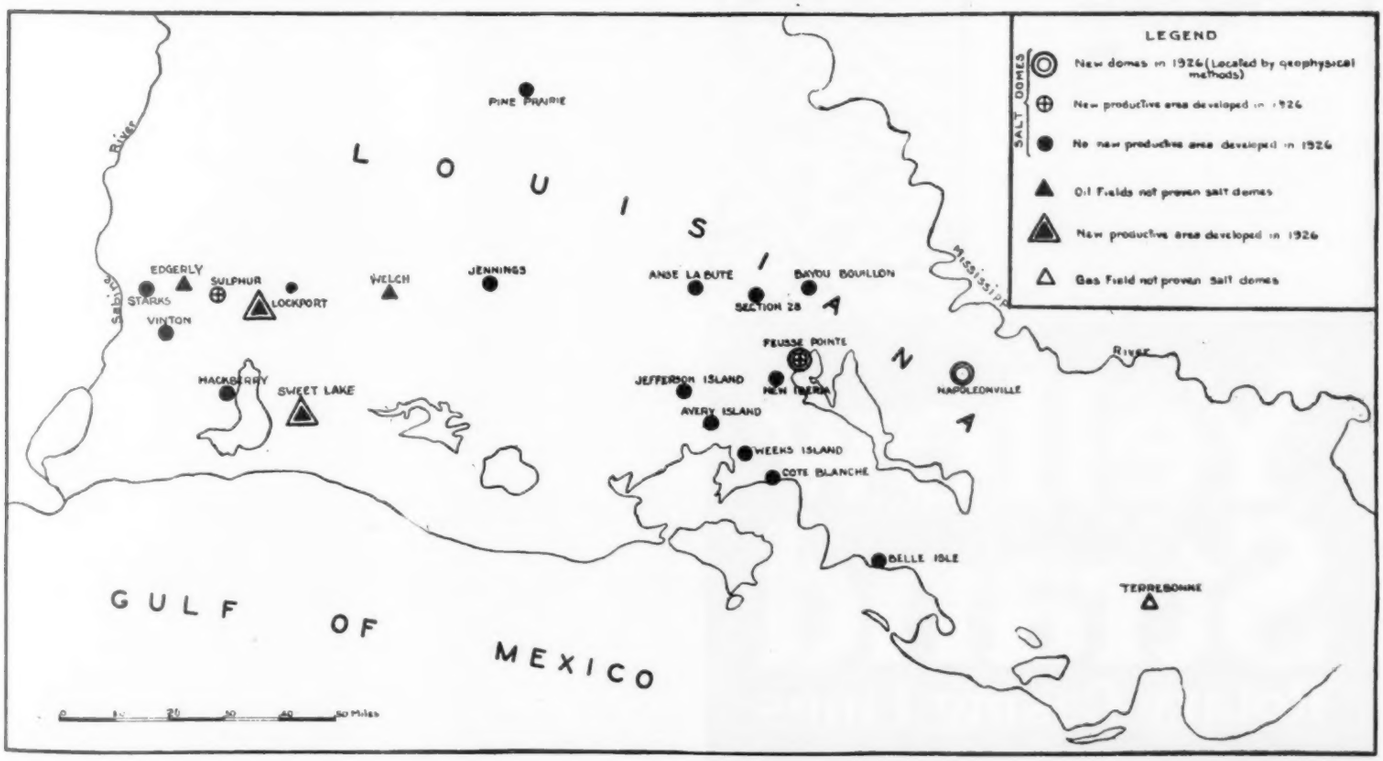
Clemens Salt Dome.—This dome is located in Brazoria County, Texas, about 4 miles northwest of the Allen Salt Dome. Torsion balances operated by the Roxana Petroleum Corp. indicated in 1925 the presence of the salt dome. The Roxana Petroleum's No. 1 Kropp hit cap rock at 584 feet March 6, 1926, proving the salt dome. Seven wells have been completed without finding commercial production and three more are drilling, although considerable oil was bailed from No. 2 Kropp. The testing of this dome is exceptional in that the Roxana's No. 1 Clemens was drilled with the guidance of torsion balance data before No. 1 Kropp had proven the presence of a dome. Later drilling to the cap showed this test to be favorably located with reference to the edge of the dome.

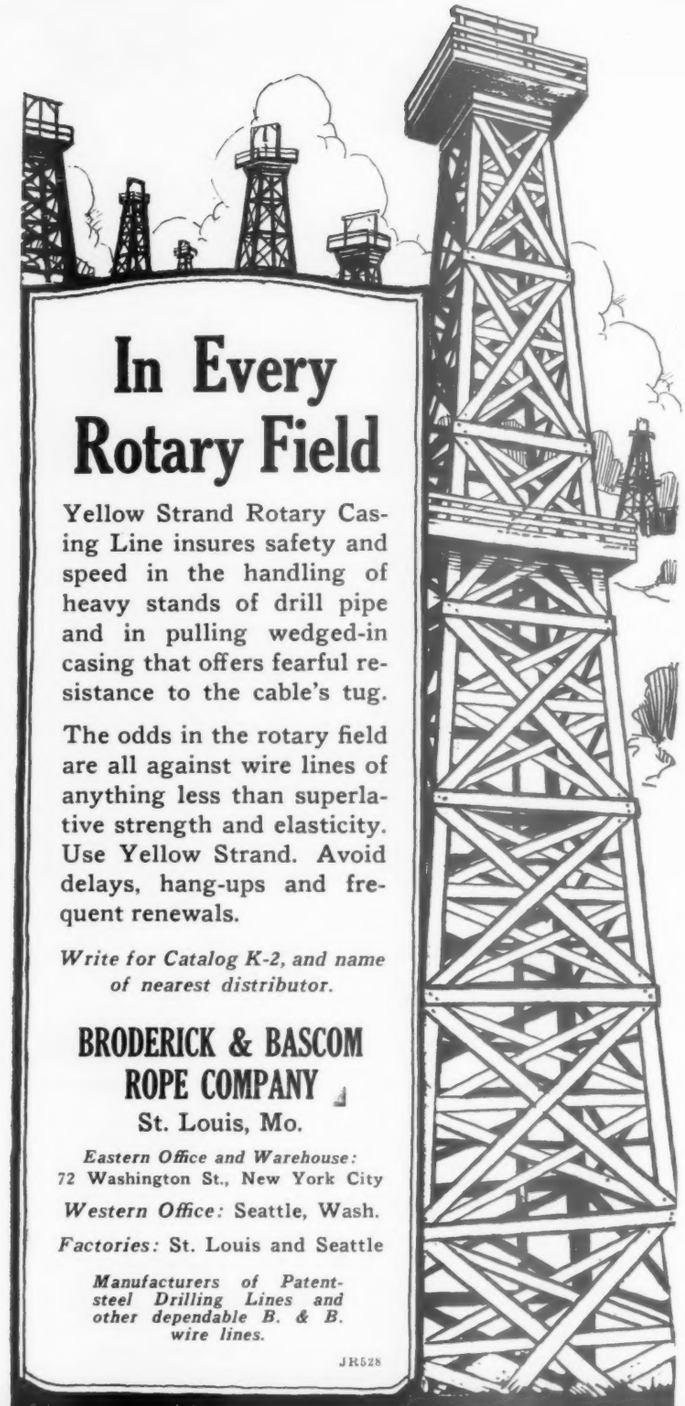
Moss Bluff Salt Dome.—This dome is located in Liberty County, Texas, about 10 miles southeast of the South Liberty Salt Dome. The approximate outline of this dome was determined about June 1, 1926, by seismograph used by the Gulf Production Co. As soon as the Gulf started its leasing program seismographs of at least four companies checked the presence of this salt dome and a rapid leasing campaign ensued, with prices nearly equivalent to those on a dome already proved by drilling. In November the Union Sulphur Co., drilling a test for sulphur in the northeast corner of the Sun Oil Co.'s Kyle oil lease, proved the presence of this dome when cap rock was hit at 835 feet. A second test now drilling 3,300 feet west hit cap rock at 674 feet. About 2 miles to the southwest a dry hole drilled to 5,015 feet failed to encounter dome material.

Feusse Pointe Salt Dome.—This dome

(Continued on Page 151)







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GULF LED IN PRODUCTION OF OIL IN TEXAS IN LAST QUARTER 1926

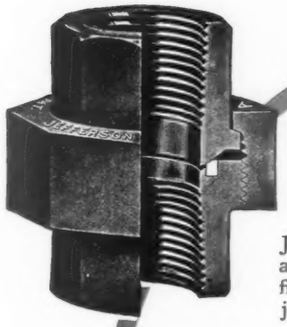
A total production of 53,477,132.04 bbls. of crude oil in the state of Texas in the last three months of 1926 was reported by the companies and individual oil operators making report to the State Comptroller for taxation purposes. The oil had a value of $88,552,581.08, or an average price of $1.66 per bbl. for the quarter.

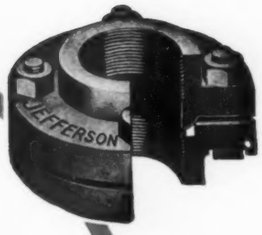
The Gulf Production Co. led all in the quantity of oil produced, reporting 6,672,353 bbls. on the leases operated by it, which gave the company a total for the year of 18,382,062 bbls. The Yount Lee Oil Co. was second to the Gulf in the matter of production for the last quarter, with a total of 3,946,247 bbls. The Spindletop Field figured largely in the greatly increased production of both these companies. The Phillips Petroleum Co.'s large holdings in the Texas Panhandle and its good properties in central Texas increased its production and it reported 3,378,143 bbls. in the last quarter. No other companies produced as much as 3,000,000 bbls. during the quarter. Three companies produced over 10,000,000 bbls. in the year, these having been the Gulf Production Co., 18,382,062 bbls.; Humble Oil & Refining Co., 12,476,936 bbls., and The Texas Company, 10,006,725 bbls.

OIL COMPANIES IN THE STATE OF TEXAS REPORTING GROSS RECEIPTS TAX ON CRUDE OIL PRODUCTION FOR THE QUARTER ENDING DECEMBER 31, 1926

Name, Address—	Bbls.	Value
Albany Oil Co., Breckenridge	7,658.07	$ 14,906.40
Amarillo Oil Co., Amarillo	3,095.72	3,757.15
Alaska Petroleum Co., Amarillo	2,135.77	2,249.48
Apex Oil Co., Amarillo	12,219.89	14,458.53
Associated Petroleum Co., Fort Worth	19,955.07	37,071.61
Apple-Brandeberry Oil Co., Wichita Falls	12,657.89	30,680.57
Amicable Life Insurance Co., Waco	529.50	755.30
Altus Production Co., Burkburnett	502.68	1,109.08
Alford Oil Co., Dallas	325.24	702.51
Anchor Oil Co., Dallas	2,617.79	5,814.95
Alamo Oil Co., Brownwood	336.00	713.08
Allday, Oil Corp., Wichita Falls	8,875.71	21,088.93
Arnold & Frazier, Putnam	714.36	1,698.45
Atlantic Oil Producing Co., Dallas	448,577.95	802,464.96
Atlantic Oil Royalty Corp., New York City	1,588.44	2,064.97
Abercrombie, J. S., Co., Houston	117,493.02	168,390.18
Anna Belle Oil Co., Dallas	4,340.98	10,188.28
Ada Belle Oil Co., Batson	22,776.21	32,615.63
Alles, J. W., Wichita Falls	1,134.54	2,325.80
Acorn Oil Co., Beaumont	8,115.15	11,361.21
Adams & Oldham, Beaumont	955.76	1,266.89
Ash Syndicate, The, Fort Worth	1,238.32	2,733.88
American Well & Prospecting Co., Corsicana	66,714.77	73,393.46
American Refining Co., Inc., Wichita Falls	139,348.92	201,360.05
Ascot Co., The, Wichita Falls	11,647.61	29,371.81
Agate Bros., Eastland	248.00	480.79
Agate, A. L., trustee, Eastland	106.53	191.75
Appleman, H., Tulsa, Okla.	15.37	27.67
Amster, N. L., Ardmore, Okla.	2,385.26	3,851.23
Adams, Brown & Lickey, Wichita Falls	1,002.64	2,385.43
Aaronson, C. T., Tulsa, Okla.	429.51	939.05
Artex Oil Co., Wichita Falls	4,111.08	9,263.41
Andrews, W. R., et al, Putnam	2,776.04	6,098.76
Alonzo, Jr., Oil Producers, Laredo	2,661.53	3,326.91
All-American Oil & Gas Co., Oklahoma City, Okla.	44.34	94.54
Andrews Petroleum Corp., New York, N. Y.	7,065.00	10,183.99
Aztec Petroleum Co., San Antonio	191.91	240.09
Arkansas Natural Gas Co., Pittsburgh, Pa.	311.67	623.34
Arkansas Fuel Oil Co., Pittsburgh, Pa.	6,490.53	13,468.82
Associated Oil Co., San Francisco, Calif.	44,808.80	58,616.49
Amerada Petroleum Corp., Tulsa, Okla.	245,898.75	462,046.95
Amyx, J. W., et al, Eastland	656.28	1,562.87
Atlas Oil Corp., Humble	4,272.00	5,981.00
Buttram Petroleum Corp., Oklahoma City, Okla.	36,286.32	90,215.75
Bonner, J. S., et al, Wichita Falls	3,830.10	8,968.28
Beatty, F. A., Fort Worth	521.63	1,059.60
Bay Oil & Gas Co., Mirando City	1,263.60	1,575.00
Brown, Mrs. Carrie L., et al, Orange	47,658.26	66,721.55
Bradley, E. L., Raymondville	259.00	603.47
Baldwin & Griswold, Fort Worth	1,010.37	2,121.37
Beasley Drilling Co., Electra	3,077.43	7,227.66
Beasley, C. U., Electra	4,200.87	9,905.69
Bailey, Mrs. Fannie, Wichita Falls	2,555.47	5,159.65
Burns, I. T., Wichita Falls	25,678.26	55,066.41
Boyd, E. W., Cisco	4,964.21	11,463.51
Breckenridge Gasoline Co., Toledo, Ohio	468.00	1,039.50
Big 4 Consolidated Oil Co., El Paso	279.65	611.68
Bliss & Weatherbee, Shreveport, La.	6,340.28	16,222.17
Bexata Oil Co., San Antonio	2,182.16	3,729.66
Bowman Oil Co., Rockdale	3,050.16	6,757.10
Baker, J. A., and Mollie B., Breckenridge	7,524.00	15,048.00
Boller, C. W., Wichita Falls	1,465.02	3,265.35
Baker Oil Co., Inc., Houston	3,905.36	3,967.08
Blue Bonnett Petroleum Corp., San Antonio	1,412.23	2,381.24
Bass & Dillard, Wichita Falls	2,273.18	5,182.85
Boreallis Oil Co., Oklahoma City, Okla.	4,714.34	10,512.97
Booth Oil Co., Olney	595.00	1,296.04
Black Cat Oil Co., Electra	1,383.87	2,995.72
Blackburn Co., The, Amarillo	16,761.85	20,157.82
Bass, Dillard & Bower, Wichita Falls	626.37	1,534.61
Brinkley Producing & Refining Co., Pittsburgh, Pa.	608.23	1,245.38
Bynum, C. W., Rockdale	1,983.38	4,432.54
Badger Oil Co., Amarillo	9,408.05	11,236.30
Bevering, A. H., et al, Hletrietta	1,726.67	3,529.67
Brown, Joseph, Wichita Falls	221.81	497.66
Braden Co., The, Tulsa, Okla.	3,247.65	7,676.58
Buffalo Oil Co., Amarillo	3,650.97	3,334.30
Babcock-Scheurer & Schlaffke, Electra	176.84	389.73
Big Indian Oil & Development Co., Gainesville	841.96	1,683.92
Bush & Cluck, Waco	270.00	391.50
Bailey & Damouth Drilling Co., Wichita Falls	925.91	1,831.86
Basham, C. E., Wichita Falls	63.21	144.75
Brock & Showers, Corsicana	2,538.81	5,971.57
Black-Pearson & Hudson, Corsicana	12,275.90	15,344.87
Buckeye Pipe & Supply Co., Breckenridge	292.61	613.27
Bohner, C. J., Burkburnett	4,291.44	9,061.37
Bashara & Bashara, Waco	335.00	502.50
Baldwin, F. C., et al, Fort Worth	3,903.78	9,358.49
Barnsdall Oil Co., Tulsa, Okla.	49,038.90	106,371.92
Broderick & Perrin, Fort Worth	957.96	2,110.39
Brown, Dr. E. W., estate, Orange	5,016.61	7,023.11
Barnum, R. G., Oil Corp., Amarillo	2,684.54	3,355.67
Bell Burke Oil Co., Waco	410.11	835.08
Bartlett, Wm., & Co., Electra	664.00	1,434.00
Bartlett Production Co., Rockdale	8,157.62	18,354.64
Brady Bros., Ardmore, Okla.	4,837.67	10,738.94
Billington-Lee, Pendleton & Bullington, Wichita Falls	9,428.30	19,689.90
Bullington, Lee & Pendleton, Wichita Falls	5,810.71	14,962.25
Bryan Oil Corp., Wichita Falls	1,880.68	3,904.29
Burk-Venus Oil Co., Dallas	45.82	96.93
Brazos River Gas Co., Wichita Falls	202.84	531.19
Brownwood Producing & Refining Co., Brownwood	2,248.82	4,857.34
Bashara, M. J., Wichita Falls	55,179.98	78,706.35
Bridwell & Heydrick Oil Co., Wichita Falls	132,791.87	297,825.52
British American Oil Producing Co., Wichita Falls	17,909.80	40,155.20
Bridwell & Heydrick, trustee, Wichita Falls	4,775.23	10,999.12
Big Lake Oil Co., Pittsburgh, Pa.	1,735,063.73	3,141,819.48
Burkburnett Production Oil Trust, Baltimore, Md.	860.85	1,987.52
Bashara, J. F., Houston	27,595.90	44,120.26
Bynum & Palmer, Rockdale	402.87	925.82
Biel, Wm. A., Von Ormy	32.00	56.16
Bearden, Annie (lease), Wichita Falls	7,362.42	17,084.40
Burton McKee Oil Corp., Strawn	387.20	882.36
Burke-Greis Oil Co., Tulsa, Okla.	4,122.39	9,955.77
Burke-Greis & Gwinnup, Tulsa, Okla.	2,417.53	5,433.11
Britton, Gordon & Wickens, Strawn	554.94	1,351.27
Beggs Oil & Gas Co., McKinney	1,474.18	3,450.85
Buchanan, S. B., Batson	12,887.21	18,042.09
Barkley & Conway, Ranger	40,645.40	102,961.19
Barkley & Crotty, Ranger	9,971.39	21,842.56
Barkley, Crotty, Six & Little, Ranger	1,844.58	4,060.12

JEFFERSON
Ground Ball
JOINTS





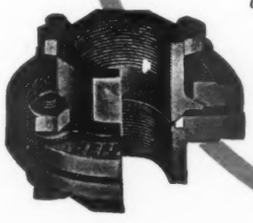
Tight, Durable, Convenient

JEFFERSON UNIONS are made with ball joints and brass seat rings, each part ground to accurate fit with its mate, thus producing a brass-to-iron joint that is absolutely tight.

Extreme durability is secured by using the best grade of brass and air refined malleable iron, and by coating nut threads with graphite to resist corrosion.

The spherical joint renders these unions easier to apply, because there is liberal play, and less force is required to bring pipe ends and bolt holes into alignment. Unskilled labor can lay pipe *faster* with JEFFERSON UNIONS.

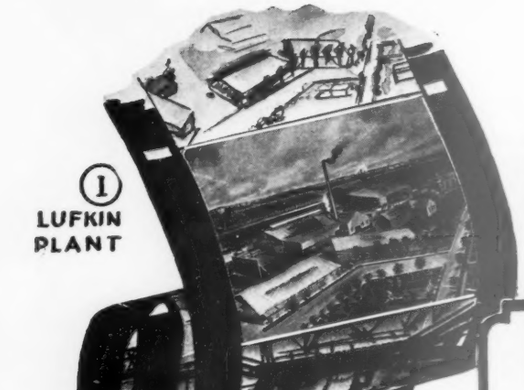
Ask for literature fully descriptive of JEFFERSON UNIONS in styles for every purpose.



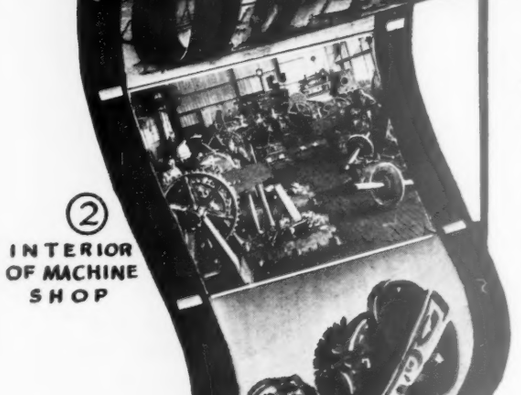
JEFFERSON UNION COMPANY
Lexington, Mass.

Handled by All Leading Oil Industry Distributors.

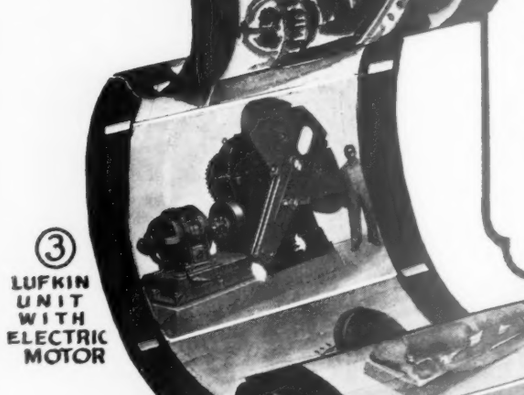
JEFFERSON



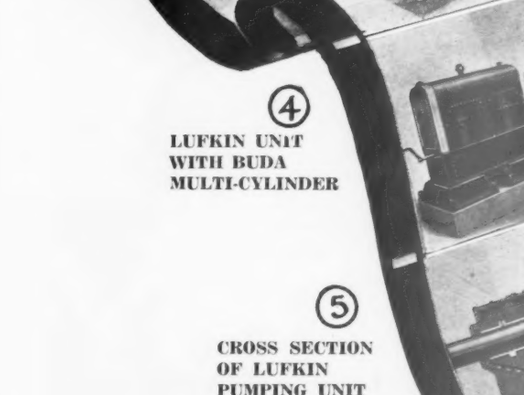
① LUFKIN PLANT



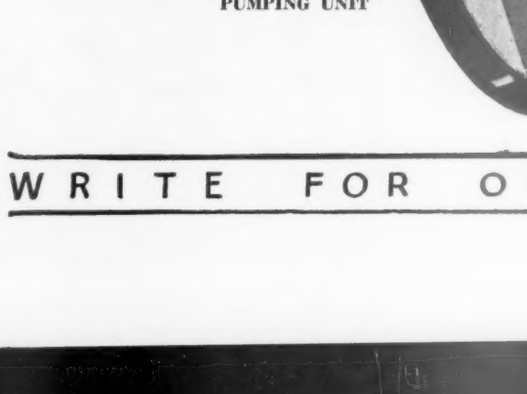
② INTERIOR OF MACHINE SHOP



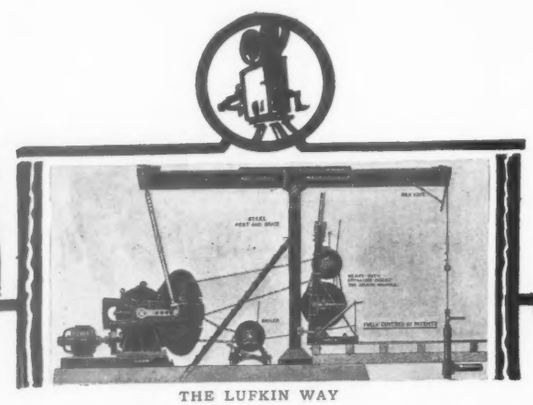
③ LUFKIN UNIT WITH ELECTRIC MOTOR



④ LUFKIN UNIT WITH BUDA MULTI-CYLINDER



⑤ CROSS SECTION OF LUFKIN PUMPING UNIT



COMBINATION ROTARY AND CABLE TOOL RIG

Either electric motor or gas or gasoline engine drive. Bailer set between unit and derrick, but may be set on derrick floor and driven from hoist. Rotary also may be driven from hoist line shaft, all operated by one operator on derrick floor. The LUFKIN-TAYLOR ROTARY, with which reversing is unnecessary, is the ideal rotary for this rig.

THE LUFKIN WAY

A Preview in your office

We invite you to view a demonstration of the LUFKIN Unit right in your office. We have a complete moving picture from plant to well, showing exactly how it is built, how it operates and how you could profit by its installation.

Here are just a few of the reasons why you should accept our invitation:

LOW UP-KEEP COSTS
Parts subject to wear easily renewable.
Original worm gears show practically no wear.

HIGHEST EFFICIENCY
Complete unit shows from 30 to 60 per cent efficiency over the average standard rig.
Power expense reduced accordingly.

MANY MECHANICAL ADVANTAGES—UNITS AND HOISTS
Rods and tubing handled in one-half the usual time.
Not necessary to reverse power with our loose drum friction hoists.

COUNTER BALANCED CRANK MEANS LESS ROD TROUBLE
There is no "whip" in a centrifugal counterbalance.

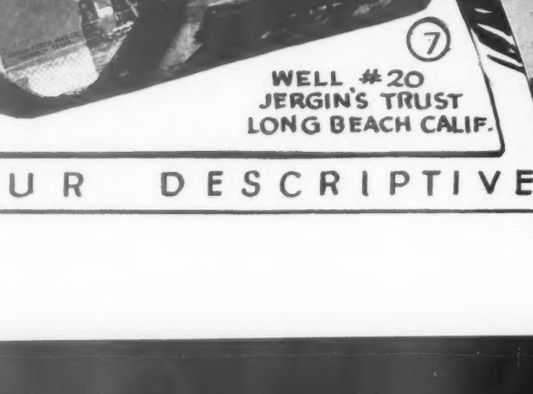
INSTALLATION AND COSTS
Fire hazard entirely eliminated.
Only slightly higher in original cost than an all steel standard rig, all things considered.

Manufactured at Lufkin, Texas by

LUFKIN
Foundry & Machine Co.
Eldorado, Ark. Tulsa, Okla.
Houston, Texas Los Angeles, Cal.
New York, N.Y.

Trinken bearings are used in all LUFKIN equipment.

⑥ WELL #21 JERGIN'S TRUST



⑦ WELL #20 JERGIN'S TRUST LONG BEACH CALIF.

WRITE FOR OUR DESCRIPTIVE BOOKLET

Name, Address—	Bbls.	Value
Burns & Maxson (Humble Acct.), Wichita Falls	2,618.78	6,141.67
Burns & Maxson, Wichita Falls	7,752.76	16,664.96
Bridwell & Mayfield, Wichita Falls	8,469.00	19,786.63
Bradstreet, L. G., Cross Plains	27,376.46	65,605.59
Beaver Oil Corp., Oklahoma City, Okla.	10,407.00	13,008.75
Big Bend Oil & Gas Co., Laredo	1,300.34	1,625.43
Bluebonnett Oil Co., Wichita Falls	936.32	2,134.28
Blair & Keil, Dallas	6,045.98	14,516.05
Barkley & Meadows, Wichita Falls	99,708.13	217,250.08
Bochell Co., The, Wichita Falls	8,923.48	21,528.04
Brown & Co., Inc., Cisco	8,424.29	19,737.11
Bailey, E. B., Wichita Falls	608.40	1,324.81
Bleakley & Kinnison, Wichita Falls	1,140.29	2,342.54
Brannon & Murray, Cisco	6,337.04	15,368.40
Bailey & McClure, Wichita Falls	622.44	1,604.35
Barkley & Meadows, Wichita Falls	6,652.95	15,123.62
Coss Oil Co., Cisco	772.72	1,780.47
Cook & Reeder, Wichita Falls	4,154.68	9,558.34
Cotton, J. H., & Co., Iowa Park	1,711.66	3,921.69
Coppock & Coleman, Iowa Park	3,713.92	8,360.38
Cromwell, Carl G., Big Lake	18,501.13	25,499.08
Chapman, P. A., estate, Waxahachie	24,465.30	50,762.39
Cezeaux & Martin, Humble	7,532.91	10,545.91
Cranfill Brothers Oil Co., Wichita Falls	1,147.51	2,475.69
Caltex Oil Co., Spokane, Wash.	626.34	1,027.75
Canyon Oil Co., Seminole, Okla.	299,043.25	303,729.46
Coons & Hotchkiss, Graham	6,084.16	15,374.86
Climax Petroleum Co., Ardmore, Okla.	2,361.31	4,722.62
Crowe & Crowe, Wichita Falls	44.88	94.24
Cintex Petroleum Co. (9-30-26), Cincinnati, Ohio	28,101.45	35,126.81
California Co., The, Colorado	225,435.00	370,029.57
Caldwell-Guadalupe Pick-Up Station, Luling	3,107.71	4,040.02
Craig & Lowrie, Pittsburgh, Pa.	1,668.17	2,619.02
Columbia Petroleum Co., Mirando City	32,090.06	40,112.57
Cottle Oil Co., San Antonio	652.02	860.67
Clem Oil Co., Houston	518.35	725.69
Canyon Oil & Gas Co., Inc., Cross Plains	28,742.48	70,576.40
Corbett, W. B., Wichita Falls	653.84	1,363.59
Cisco Oil Co., Tulsa, Okla.	43,116.46	87,815.08
Charter Oil Co., Brownwood	16,942.87	32,595.17
Clough, Chas. E., Wichita Falls	1,799.71	3,636.33
Cranfill Bros. Oil Co., Dallas	13,151.45	29,730.86
Coffey Schlaffke, Electra	150.54	316.13
Conner Sons & Cloughly, Gotebo, Okla.	6,685.56	15,246.31
Coble-Whittenburg Oil Co., Amarillo	32,082.22	44,872.78
Centerfield Oil Co., Amarillo	500.00	625.00
Cockrell-McIlroy Oil Co., Amarillo	40,232.84	48,857.52
Cline, W. D., et al, Wichita Falls	500.12	1,125.27
Cole, W. C., Wichita Falls	1,162.50	2,763.87
Caruthers Company, San Antonio	**2,465.00**	**4,113.67**
Capitol Oil Co., Orange	3,984.25	5,577.95
Christie Bros., Wichita Falls	11,779.72	26,397.15
Coffey & Graham, Wichita Falls	492.48	1,146.29
Canary, S. C., et al, Tulsa, Okla.	634.22	1,458.63
Cintex Petroleum Co., Cincinnati, Ohio	15,676.82	19,596.03
Chandler, C. G., Germantown, Philadelphia, Pa.	1,717.29	2,146.61
Cady Oil Co., Moran	4,563.76	9,639.34
Collins, J. L., & Co., Corsicana	31,052.49	39,807.07
Crown Central Petroleum Corp., Houston	140,804.80	176,006.00
Chapman, P. A., Jr., Eastland	715.85	1,478.30
Conway Bros. & Gholson, Ranger	3,436.54	7,157.06
C. G. & C. Oil Co., Wichita Falls	475.69	1,023.97
Cowling & Newell, Burkburnett	651.30	1,474.12
Cowling & Hopps, Wichita Falls	251.38	611.63
Camp Oil & Gas Co., Wichita Falls	7,550.73	17,385.04
Clara Oil Co., Wichita Falls	643.83	1,523.01
Curry, E. M., Cross Cut	18,846.95	47,151.92
Cline Oil Co., Wichita Falls	2,385.41	5,247.90
Cosden, J. S., Inc., Fort Worth	82,429.89	198,161.86
Continental Oil Co. of Texas, Wichita Falls	958,747.63	1,928,705.52
Culbertson Co., Wichita Falls	25,682.23	59,951.84
Carter, Fine & Carter, Wichita Falls	3,388.00	6,351.36
Consolidated Oil Co. of Texas, Wichita Falls	39,199.69	87,763.12
Campbell, Walter K., Wichita Falls	4,654.41	10,558.95
Campbell, Walter K., Co., Wichita Falls	393.23	859.11
Chicago Oil & Land Co., Inc., Rockdale	2,266.38	4,971.76
Crosbie, T. S., San Antonio	2,041.50	3,531.02
Croslin, T. S., San Antonio	2,472.54	
Cohen, Aaron, Baltimore, Md.	20,952.97	47,772.04
Cornhusker Oil Co., Lincoln, Neb.	5,121.65	6,401.05
Carlin & Dewhirst, Ranger	354.24	814.75
Carlin, W. W., Ranger	369.52	824.02
Champlin Refg. Co., Enid, Okla.	1,238.48	1,836.57
Cohen & Lebow Trust, Baltimore, Md.	287.18	627.50
Clay, J. D., Houston	3,339.46	4,675.24
Crown Oil & Refining Co., Houston	18,428.64	25,800.10
Clear Lake Oil Co., Rockdale	5,799.92	12,916.13
Chenault, Palmer & Burch, Wichita Falls	21,555.41	49,513.84
Clark, R. R., (from 4-1 to 12-31-26) Wichita Falls	94,604.75	220,927.67
Curtis, J. A., Wichita Falls	6,048.32	14,007.12
Chenault, N. B., Wichita Falls	6,612.24	15,245.04
Crawford, Jas. K., Tulsa, Okla.	12,638.09	30,835.04
Clear Creek Oil Co., Brownwood	250.44	502.60
Canadian River Oil Co., Amarillo	26,104.38	33,143.57
Cranfill & Reynolds, Cisco	227,697.94	507,362.07
Colony Oil Co., Wichita Falls	1,616.82	3,794.77
Coffield & Hale, Rockdale	5,499.17	11,873.02
Coffield & Hale, Rockdale	728.01	1,522.40
Carter, Roy I., Wichita Falls	12,747.46	30,769.07
Castlebury, S. A., Vernon	924.12	1,838.59
C. W. M. T. Oil Co., Wichita Falls	3,416.72	7,755.97
Clark, Harbin & Baldridge, Wichita Falls	579.16	1,321.86
Crenshaw & Whitehill, Wichita Falls	2,493.01	5,864.40
Continental Supply Co., St. Louis, Mo.	503.57	1,022.13
Chestnut & Smith Corp., Tulsa, Okla.	116.37	230.28
Coyle Concord Oil Co., San Antonio	2,232.57	4,827.32
Cox, Edward B., Ardmore, Okla.	3,149.87	6,628.44
Campbell Royalty Co., Wichita Falls	675.22	1,526.29
Corsicana Oil & Refining Co., Corsicana	10,671.01	13,864.27
Davis, W. F., Wichita Falls	891.28	1,880.60
Davis, L. R., Tulsa, Okla.	427.44	572.75
Dixon, Reeder & Cook, Wichita Falls	2,431.50	5,687.70
Darlington, F. J., Whitsett	2,852.50	2,567.25
Douglas Oil & Investment Co., Electra	2,260.91	5,833.83
Doering, John A., Houston	12,777.19	23,312.51
Dalton Bell Oil Co., Palo Pinto	564.00	1,156.00
Deep Sands Syndicate, Corsicana	466.00	582.50
Duffield & Howard Oil Co., Tulsa, Okla.	964.24	1,875.27
Dale Oil Corp., Wichita Falls	33,060.22	75,533.55
Darilek Lease Account, Wichita Falls	2,492.07	5,781.60
Dixon Creek Oil Co., Amarillo	531,787.11	788,292.42
Daniel, S. B., Wichita Falls	1,788.87	4,048.48
Derby Oil Co., Dallas	2,906.11	5,906.08
Dominion Oil Co., Tulsa, Okla.	1,615.46	3,487.42
Douglas Bros. & Lebus, Electra	751.15	1,614.14
Douglas, L. P., and Douglas Oil & Investment Co., Electra	1,900.18	4,432.22
Dale Oil & Refining Co., Inc., Wichita Falls	4,764.37	10,591.21
Den-Wich Oil Co., Abilene	1,263.76	2,842.39
Double Five Oil Co., Amarillo	4,278.60	5,381.81
Derby & Haines, Wichita, Kans.	35,921.10	44,901.37
Delmar Oil Co., Bartlesville, Okla.	3,450.93	4,311.26
Danciger, A., Wichita Falls	1,870.05	4,157.06
DuBose, Kirkpatrick, Moore & Snebold, Fort Worth	2,334.64	4,759.16
Dillon-Glascock Co., San Antonio	613.77	963.62
Douglas Oil Co., Tulsa, Okla.	1,083.84	1,354.84
Dennis, J. S., Moran	1,778.87	3,770.99
Dudley, G. S., Iowa Park	1,037.53	2,339.54
Dayton Oil Co., Dayton	548.22	767.51
Dale & Crawford, Electra	950.06	2,251.41
Dale, Knotts Oil Co., Wichita Falls	265.21	620.27
Dibble Oil Co., San Antonio	2,723.80	3,540.93
Derby, Haines & Williams, Wichita, Kans.	131,509.08	164,386.35
Deutser, B., trustee, Beaumont	1,699.88	2,379.83
Dorian, R. P., Wichita Falls	6,244.06	13,803.75
Domestic Oil Co., Cisco	2,202.42	5,265.68
Dixie Oil Co., Inc., Shreveport, La.	273,110.64	269,762.79
Devonian Oil Co., Tulsa, Okla.	80,405.41	105,821.09
Dixon & Reeder, Wichita Falls	376.88	561.01
Davis, Caroline A., Somerset	593.13	983.77
Dunnigan & Dunaway, Amarillo	20,292.71	25,365.78
Dickey Oil Co., Cisco	247.53	488.00
Dallas-Bradford Oil Co., Dallas	248.28	555.23

This is No. 30 of a series on specifications—keep for reference in ordering.

BARSCO PRODUCTS

for Oil and Gas Well Drilling

—here's a stronger and more rigid Gas Packing Clamp—

Here's another proof that BARSCO products are built better—*two extra strong bolts* (instead of the usual one) *at either end*—greater rigidity, therefore longer life.

Specifications on Gas Packing Clamps with Gas Outlet

Size, Inches	Size Gas Outlet	Weight, Pounds
6¼x 4½	1½ or 2	120
6⅝x 4½	1½ or 2	130
6⅝x 5⅛	1½ or 2	120
7⅝x 5⅝	1½ or 2	150
8¼x 5⅛	1½ or 2	160
8¼x 5⅛	2½ or 3	155
8¼x 6¼	1½ or 2	160
8¼x 6¼	2½ or 3	180
8¼x 6⅝	1½ or 2	155
8¼x 6⅝	2½ or 3	190
9⅝x 7⅝	1½ or 2	195
9⅝x 7⅝	2½ or 3	240
10 x 6⅝	1½ or 2	230
10 x 6⅝	2½ or 3	290
10 x 8¼	1½ or 2	200
10 x 8¼	2½ or 3	250
11⅝x 9⅝	1½ or 2	245
11⅝x 9⅝	2½ or 3	320
12½x 8¼	1½ or 2	310
12½x 8¼	2½ or 3	390
12½x10	1½ or 2	250
12½x10	2½ or 3	330
13½x12½	1½ or 2	300
13½x12½	2½ or 3	380
15½x12½	1½ or 2	370
15½x12½	2½ or 3	465
15½x13½	1½ or 2	350
15½x13½	2½ or 3	440

BARSCO also builds Gas Packing Clamps —regular pattern, without gas outlets.

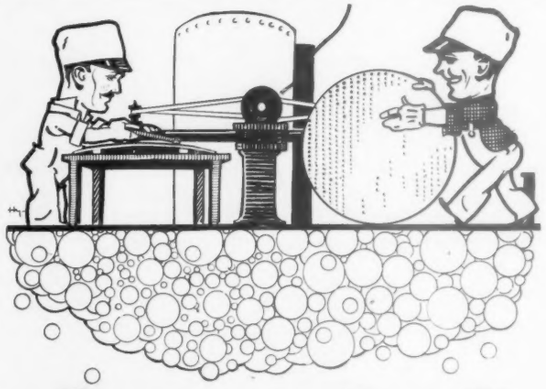
Stocks carried by Dealers.

BARTLESVILLE SUPPLY COMPANY of Missouri
3400 MAURY AVENUE—ST. LOUIS, MISSOURI
Export Office: 2 Rector St., New York City

Manufacturer's Representatives

B. & A. Specialty Co., Tulsa, Okla. — **Robert J. Miller Co., Houston, Tex.** — **Miller Tank & Supply Co., Casper, Wyo.**

—Write for Complete Catalog



Campbell Business is built on BUBBLES!

We've put billions and billions of bubbles to work—and they are paying good dividends—dividends to the gasoline plant in the form of greatly increased production—and dividends to us in the form of constantly increasing orders.

The utilization of oil-froth to extract natural gasoline from wet gas has been one of the outstanding achievements in the gas industry—and it is a contribution generally accredited to Campbell Engineers.

J. A. Campbell

Consulting—Designing—Construction

Natural Gas Engineer

P. O. Box 669 LONG BEACH, CALIF.

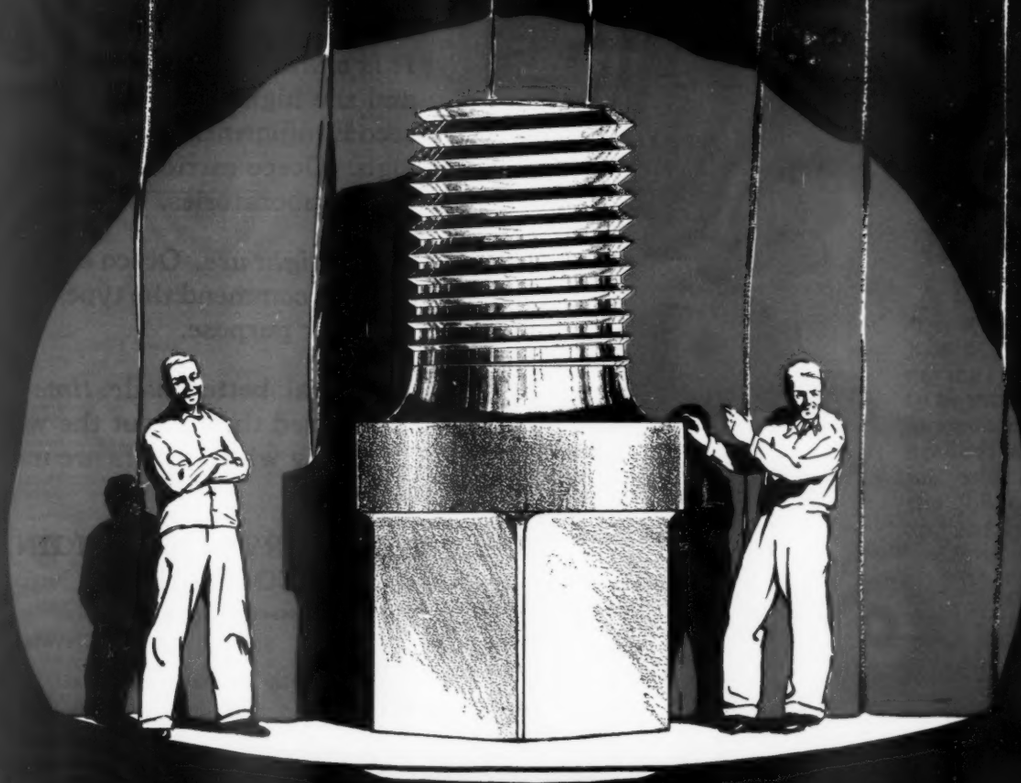
CAMPBELL

OIL FROTH

absorber

Name, Address—	Bbls.	Value
Duquesne Oil Corp., Eastland	895.33	2,101.92
Emrick, U. R., Chicago, Ill.	593.51	1,265.70
East Batson Oil Co., Batson	20,184.12	28,525.15
Empire-Pierce Fordyce Lease-Jno. F. Foster, receiver, Fort Worth	14,071.10	32,915.42
Eddy Oil Co., Beaumont	747.49	1,008.67
Electra Production Co., Electra	1,920.35	4,526.00
Empire Gas & Fuel Co., (Me.) Bartlesville, Okla.	727,460.07	1,033,575.27
Eureka Producing Co., Tulsa, Okla.	24,872.70	56,105.50
Eastern Petroleum Corp., Wichita Falls	1,793.84	3,661.23
Ernest Oil Co., Rockdale	1,533.13	3,219.57
Edgington & Niles, Laredo	795.00	992.75
Earnest, Herman, Rangers, (estimate)	300.00	528.32
Easton, E. S., Wichita Falls	2,403.77	5,392.05
Ellis & Anderson, San Antonio	194.53	325.28
Evans Oil Co., San Antonio	7,474.35	9,716.65
Eastland Oil Co., Fort Worth	20,198.12	34,154.58
Erie Investment Limited of Texas, Toronto, Canada	1,087.85	2,349.75
Electra Callahan Oil Co., Electra	1,540.96	3,541.60
El Paso-Burkburnett Oil Co., El Paso	84.47	167.07
Eggers, J. E., trustee, San Antonio	1,076.72	1,779.39
Echo Oil Co., Amarillo	171,922.91	196,617.89
Electra Gulf Oil Co., Electra	3,008.01	6,695.43
Erickson, David, Wichita Falls	169.74	368.64
Fuchs, Fritz, Taylor	373.45	793.98
Fuller, E. E., Wichita Falls	372.17	788.21
Fresno Oil Co., Wichita Falls	21,042.66	47,396.49
Fisher, R. E., trustee, Burkburnett	562.06	1,279.51
Ferguson, Hawkins & Hester, Wichita Falls	1,836.17	4,217.95
Fisher, Fannie E., administratrix, Newport, N. Y.	3,366.22	7,540.25
Freeman, Hampton Oil Corp., Wichita Falls	11,067.70	25,021.95
Fogle Oil Co., Minerva	2,286.00	4,853.75
Fort Ring Oil & Gas Co., Fort Worth	802.75	1,842.40
Ferguson, W. R., Wichita Falls	730.61	1,694.27
Foster & Sandford, Fort Worth	881.72	1,485.76
Fisher, R. E., trustee, Burkburnett	859.54	859.54
Farish & Ireland Lease, Houston	4,600.14	6,440.20
Frontier Oil Co., San Antonio	19,379.13	35,390.96
Flynn, W. B., Beaumont	5,460.93	8,233.15
Feagin, Gillette & Roth, Tulsa, Okla.	13,645.04	31,756.48
Fuller, King & Daniel, Wichita Falls	3,917.20	9,145.65
Fleming & Kimbell, Sherman	21,714.69	28,158.32
F. H. E. Oil Co., Sherman	14,246.11	19,611.20
Fisher & Gilliland, Wichita Falls	6,842.51	15,619.61
Forbes, Thos., Graham	79.33	124.84
Fisher-Gilliland-Gates & Nutt, Wichita Falls	4,255.78	10,018.60
Franchot, D. W., & Co., Tulsa, Okla.	191.21	380.95
Fountain Production Co., Saratoga	4,500.97	6,302.34
Florence Oil Co., Oklahoma City, Okla.	4,983.70	12,399.24
Farlyn Oil Co., Houston	36,331.40	46,405.90
Five Rivers Oil & Gas Co., Wichita Falls	894.30	2,030.38
Foster, Townsend, Ungren & Frazier, Putnam	5,027.96	11,617.09
Fuqua & Hipp, Grandfield, Okla.	1,559.47	3,247.31
Fensland Oil Co. of Texas, Denver, Colo.	8,368.44	17,913.92
Ferguson & Watson, Electra	2,273.98	5,268.10
Gladys Belle Oil Co., Tulsa, Okla.	722.00	1,480.10
Glenridge Oil Corp., St. Louis, Mo.	4,730.78	10,677.25
Gutzler, W. F., Wichita Falls	218.54	452.11
Green, W. J., et al, Wichita Falls	137.88	275.75
Galena-Signal Oil Co., Houston	81,856.97	127,241.81
Gates-Bacon-Lea, Wichita Falls	52,422.65	111,896.63
Gultex Production Co., Waxahachie	4,500.18	10,578.06
Goldsmith, N. D., Olney	1,129.44	2,241.09
Gaither Production Co., Rockdale	786.45	1,616.65
Godley Oil & Gas Co., Dallas	13,454.43	28,970.40
Granite Oil & Gas Co., Ridgeway, Colo.	349.93	805.42
Godfrey, F. L., Enid, Okla.	121.23	265.73
Gilbert Co., The, Beaumont	5,958.80	8,342.32
Gallagher & Lawson, Desdemona	142.44	256.39
Graham & Lash, Moran	2,381.80	5,392.81
Grand Duke Producing Co., Muskogee, Okla.	209.11	443.09
Gunn Production Co., Cross Plains	6,922.00	15,323.00
Gulf Coast Oil Corp., Houston	20,031.35	28,043.88
General Oil Co., Houston	699.87	1,587.27
Goolsbee & Graham, Wichita Falls	148.91	324.52
Gutzler & Cottingham, Indianapolis, Ind.	60.61	127.27
Gordon Oil Co. of Texas, The, Logan, Ohio	143.20	318.03
Guthrie, Cole & Ferguson, Wichita Falls	1,578.24	3,421.44
Gillespie, R. G., estate, Cisco	10,736.53	26,531.91
Graham, H. L., Wichita Falls	1,761.71	3,819.57
Gates Oil Co. (Wyoming Corp.), Denver, Colo.	21,603.43	27,191.75
Gardner Bros. & Collins, Wichita Falls	1,832.20	4,739.16
Gilman & Conway Bros., Ranger	18,253.85	46,537.85
Golding & Cochran, Wichita Falls	5,156.06	10,054.32
Grady, D., Electra	715.00	1,698.56
Gilliland Oil Co., Tulsa, Okla.	1,185.37	3,238.07
Gopher Oil Co., Amarillo	700.00	875.00
Gohman Oil Co., Rockdale	3,249.88	6,662.24
Gilliland-Scott et al, Wichita Falls	601.52	1,383.37
Grayce Oil Co., Wichita Falls	25,402.36	56,461.33
Guaranty Oil Co., Electra	243.62	601.77
Goolsbee & Goolsbee, Wichita Falls	258.20	564.28
Glass Brothers, Minerva	1,053.52	1,969.79
Glasscock, Rosa V., San Antonio	838.62	1,425.65
Glasscock Leasing Syndicate, San Antonio	2,764.71	4,838.24
Grayburg Oil Co., San Antonio	260,237.04	360,665.86
Gibson Oil Co., Amarillo	52,451.22	85,104.81
Gulf Production Co., Houston	6,672,353.20	10,111,349.69
Golden West Oil Co., San Antonio	32,004.78	42,502.26
Gates Oil Co., Ardmore, Okla.	4,694.05	11,716.35
Gilliam Logan Oil Co., Fort Worth	3,403.74	5,506.19
Gray, T. H., Fort Worth	1,478.85	2,429.33
Gholson, Thompson, Barkley & Crotty, Ranger	6,405.30	14,263.43
Group No. 1 Oil Corp., Big Lake	844,808.21	1,526,591.61
Gwynn, P. F., agent, Wichita Falls	2,378.79	5,279.70
Gwynn-Boyd Drilling Co., Wichita Falls	38,215.54	49,454.70
Gwynn, P. F., Wichita Falls	307.67	610.80
Goldelline Oil Corp., Oklahoma City, Okla.	10,407.00	13,008.75
Galvez Oil Corp., Tulsa, Okla.	6,171.64	13,058.54
Huber, J. M. Co. of Louisiana, Inc., Breckenridge	2,238.97	5,473.24
Harris-Fisher Oil Co., Cisco	1,013.40	2,156.51
Harrel McElreath & Cook, Wichita Falls	233.31	499.52
Hammond, J. G., Wichita Falls	283.83	673.83
Hanover Co., Inc., Wichita Falls	3,111.60	6,517.92
House & Lewis Oil Co., Cameron	1,050.36	2,100.72
Houghland Production Co., Ponca City, Okla.	4,729.18	10,593.36
House Oil Co., Baird	6,358.73	14,373.76
Howell, J. H., trustee, Electra	373.76	859.23
Hardy Oil Co., Wichita Falls	4,288.79	9,482.57
Hutchinson County Oil Co., Amarillo	750.00	787.50
Hemby, J. M., Electra	1,159.36	2,666.88
Hefley, McIntosch & Thomas, Cameron	820.56	1,725.07
Hill & Riley, Amarillo	15,992.82	22,921.18
Hagy Co., The, Amarillo	200.00	250.00
Halmack Oil Co., Dallas	4,005.07	8,576.39
Hitchman & Howard, San Antonio	1,693.94	3,079.85
Hobbs Oil Co., Tulsa, Okla.	4,197.25	9,264.76
Hyde & James, Albany	17,152.20	37,557.61
Hammond, L. P., Wichita Falls	1,338.67	2,677.34
Hambleton, George, San Antonio	626.17	1,166.15
Hamon, Jake L., Jr., Ardmore, Okla.	13,921.71	30,109.56
Hyde Production Co., Houston	8,172.94	12,424.91
Hagaman Refining Co., Ranger	828.55	1,928.42
Hooser, John W., Dallas	41,960.49	76,820.98
Hooser Oil Co., Dallas	12,632.70	24,402.30
Humphreys & Merritt, Wichita Falls	2,211.21	4,590.56
Hull Oil Co., Houston	38,760.68	56,793.77
Humphreys Corp., Houston	117,003.19	226,094.12
Hart Oil Corp., Fort Worth	624.47	1,460.10
Hart-Mexia Syndicate, Fort Worth	466.61	1,003.26
Hughes, J. K., Oil Co., Inc., Mexia	51,776.74	104,753.44
Hughes, J. K., Developing Co., Mexia	471,557.13	761,871.93
Herbert Oil Co. of Texas, Fort Worth	1,742.42	4,220.54
Hester, Hawkins & Staley, Wichita Falls	856.43	2,162.64
Houston Production Co., Houston	27,561.53	41,746.92
Hamilton, Robert, et al, Eastland	591.00	1,211.55
Habif, J., Los Angeles, Calif.	76.96	122.08
Hamilton & Wilson, Wichita Falls	4,814.76	11,411.37
H. B. J. Oil & Gas Trust, Baltimore, Md.	1,542.57	3,552.17
Harwell, O. H. and O. E., Abilene	486.72	1,104.86
Harwell Brothers, Abilene	1,074.40	2,506.65
Holmes & Riley, Amarillo	27,754.00	.....

In the Spotlight >>>>>



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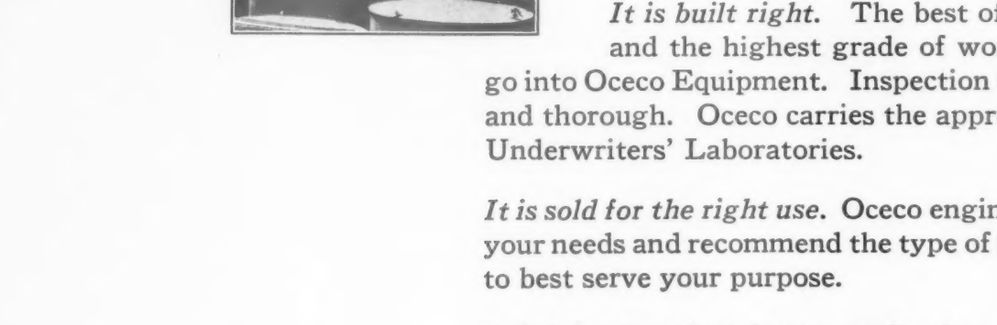

O C E C O

Name, Address—	Bbls.	Value
Holmes & Huey, Amarillo	8,122.14	10,031.98
Helvetia Oil Co., San Antonio	17,746.70	31,598.33
Hockaday & Shaw, Wichita Falls	2,056.14	4,415.20
H. Y. Oil Co., Fort Worth	9,509.96	22,497.04
Holbrook & Woods, Wichita Falls	14,083.42	30,924.27
Henshaw, G. A., Jr., & Co., San Angelo	42,305.44	104,426.91
Hardie, Joe M., Sour Lake	379.00	530.60
Hueco-Ranger Oil Co., El Paso	329.54	718.37
Hankamer, Earl C., Sour Lake	1,196.63	1,675.28
Hoffer Oil Corp., Fort Worth	7,249.10	16,506.61
Hoppes, W. T., Burkburnett	173.86	452.32
Hanlon Gasoline Co., Tulsa, Okla.	1,127.55	2,187.58
Hughes, William K., trustee, St. Louis, Mo.	1,321.30	2,714.64
Haggard, J. E., Wichita Falls	192.32	372.73
Hammon, Heyser, Garrett & King, Wichita Falls	3,569.06	8,442.78
Hammon, Heyser & Garrett, special, Wichita Falls	28,366.69	53,199.64
Hammon & Garrett, Wichita Falls	4,241.54	10,052.41
Hammon, Heyser & Garrett, Wichita Falls	2,816.98	6,695.26
Homaokla Oil Co., Oklahoma City, Okla.	4,441.19	10,999.07
Hammon & Hayser, Wichita Falls	448.40	1,029.13
Hammon, Wayne, special, Wichita Falls	1,960.42	4,519.16
Hobson & Voorhees, San Antonio	1,185.09	2,273.26
Hope Oil & Gas Co., Fort Worth	31,196.43	63,818.41
Humble Oil & Refining Co., Houston	2,876,289.61	5,476,331.71
Harris & Hays Co., Okmulgee, Okla.	1,304.72	2,764.09
Hickok Producing & Developing Co., Toledo, Ohio	623.88	1,114.59
Howard Petroleum Corp., Tulsa, Okla.	1,418.54	2,770.21
Hardie, J. M., & Co., Sour Lake	712.40	997.37
Hester, Hawkins & Ferguson, trustees, Wichita Falls	3,340.03	7,627.28
Houston Oil Co. of Texas, Houston	26,059.99	40,147.45
Housman, D. H., & Co., Dallas	48.16	118.78
Hamilton & Martin, Wichita Falls	2,163.44	4,673.03
Henderson, E. R., trustee, Tulsa, Okla.	92.32	184.65
Hickory Oil & Gas Corp., Fort Worth	267.14	534.76
Helf, C. H., Albany	1,347.12	2,453.31
Hamilton, H. L., estate partnership, San Antonio	7,826.68	16,329.91
Harris Hays Oil Co. Okmulgee, Okla.	2,007.95	3,846.67
Horn, John E., and E. S. Horn, trustee, Kansas City, Mo.	384.58	907.35
Howard, Duffield & Berlin, Tulsa, Okla.	53.82	984.48
Hinson & Tidwell (Glidewell lease), Graham	860.14	1,938.31
Hinson & Tidwell (Shimmell lease), Graham	2,686.32	6,155.47
Idaho Oil Co., San Antonio	2,407.98	4,213.96
Infield Petroleum Co., Austin	1,352.09	3,145.18
Indiahoma Corp., The	1,254.33	2,811.74
Independent Oil & Gas Co., Tulsa, Okla.	163,277.31	181,320.76
Iseng Production Co., Inc., Fort Worth	8,794.69	17,518.83
Iseng, A. G., Fort Worth	233.60	514.67
Interocean Oil Co., Tulsa, Okla.	18,283.56	39,563.62
Jacob Oil & Gas Co., Graham	838.30	1,774.67
Johnson Brothers (9-30-26), San Antonio	14,178.93	33,217.64
Johnson Brothers (12-31-26), San Antonio	13,642.86	27,215.45
Jones Oil Co., Wichita Falls	3,016.94	6,908.79
Jackson, J. S., trustee, Sour Lake	3,064.81	4,290.73
Jonray Oil Co., San Antonio	4,438.61	7,593.50
Johnson, O. C., trustee, San Antonio	1,224.87	1,531.09
Jones, W. A., and Thomas Phillips, Minerva	313.18	682.99
Jones, J. A., Moran	457.48	1,069.85
Judson Oil Co., Tulsa, Okla.	15,500.63	35,791.04
Julia Oil Co., Sour Lake	4,334.66	6,068.52
Jennings Oil Co., Youkum	5,416.70	11,995.02
Jones, J. E., Wichita Falls	1,634.93	3,782.31
Jackson Co., San Antonio	1,570.50	2,748.38
Junior Oil Co., Cross Plains	2,429.37	6,351.48
Jones, Edwin M., El Dorado, Ark.	31,073.94	68,002.27
Junior Oil & Pipe Line Co., Corsicana	1,226.57	1,533.21
Japhet Production Co., Houston	65,039.72	81,299.65
Jameson, Charles M., Moran	1,429.98	3,346.64
Janellen Oil Co., Tulsa, Okla.	219.00	394.00
Kuhlemeier-Kleiner Oil Co., Cisco	968.12	2,145.88
Keystone Production Co. of Texas, Fort Worth	5,579.00	13,111.03
Kerr, T. P., Corsicana	371.86	784.20
Kent, G. C., Corsicana	40,947.86	86,904.63
Kleinfelder, B. F., Breckenridge	1,551.54	3,322.16
Kurz Oil Co., Somerset	744.55	1,186.16
Klemcke, George, trustee, Army	2,858.17	4,466.91
Kavanaugh Petroleum Co., Houston	1,389.79	3,091.74
Kemrow Co., Wooster, Ohio	15,327.07	35,414.57
Kone Production Co., San Antonio	36,734.05	87,191.94
Kahle, Gracey & Diver, Bridgeport, Ill.	13,542.53	17,334.44
Kolp, C. F., Electra	13,305.84	28,975.23
Keen & Woolf Oil Co., Shreveport, La.	17,487.49	24,482.49
Kate Bell Oil Co., Dallas	1,608.97	3,631.88
Kendrick, P. S., Albany	534.90	1,034.59
Kistler, Frank B. & Co., Denver, Colo.	236,330.34	295,412.92
Kaufman, L., San Antonio	570.94	875.87
Kemp-Munger-Allen Oil Co., Wichita Falls	7,711.58	17,632.07
Keith, E. F., Desdemona	1,387.76	2,823.92
Kurz, A. A., Jackson lease, San Antonio	78.00	139.44
Kurz, A. A., San Antonio	301.00	494.50
Kent Middleton Refining Co., Corsicana	26,992.15	58,494.17
Kleiner Brothers, Cisco	207.32	466.04
Knotts, F. F., Wichita Falls	779.64	1,815.82
Kistler & Lenix, Amarillo	42,213.64	52,767.08
King Royalty Co., Wichita Falls	13,237.88	30,486.36
K. & S. Corp., Laredo	39,150.70	48,938.38
Kewanee Oil & Gas Co., Titusville, Pa.	15,142.31	37,095.70
Kirby Petroleum Co., Houston	11,855.82	23,930.47
Kilgore, M. H., Beaumont	509.48	701.29
Kornfeld, Mrs. Fannie, Tulsa, Okla.	262.46	530.78
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	5,979.18	13,719.91
Kirk & Brewer, Gorman	2,181.62	5,159.68
Kimmell & Dillard, Wichita Falls	7,241.57	15,708.51
Killiam, O. W., Laredo	2,556.47	3,195.59
Lomax, Thornton, Jr., Wichita Falls	15,223.17	35,961.65
Lowe, Delaney & Carter, DeLeon	2,295.33	5,215.94
Lesh, P. F., Wichita Falls	3,014.48	6,464.69
Len Cook Oil Co., Electra	1,109.74	2,520.40
Light Oil Co., Beaumont	232.28	404.62
Lytle, C. F., Mexia	17,741.72	36,053.48
Lucky Six Oil & Gas Co., Bangs	170.88	350.30
Lucey Petroleum Co., Dallas	1,120.61	2,398.92
Lee, R. Q., Cisco	207.68	498.35
Leonard Oil Co., Somerset	414.10	689.06
Leonard, George, Somerset	251.55	363.28
Lake Erie Trust Co., trustee, Cleveland, Ohio	975.26	2,243.05
Long Roy Oil Co., Navasota	3,577.70	8,154.39
Lowrey, J. T., Albany	72.36	108.54
Larkin, W. B. (Burnett-Larkin lease), Wichita Falls	461.94	1,025.14
Lucky Tex Oil Co., Amarillo	27,583.19	34,468.98
Lewis, J. E., et al, Eastland	1,759.50	3,724.78
Lytle Oil Association, Lytle	344.19	527.79
Letwin, Sam, Breckenridge	3,332.11	6,657.50
Lanier, C. C., Gainesville	11,159.68	21,296.80
Lowry Oil Corp. and W. R. Burns, Wichita Falls	3,024.72	6,245.87
Laredo Oil Co., Laredo	4,097.46	5,121.82
Lee, Homer, Wichita Falls	3,955.06	9,166.07
Little Caddo Syndicate, Fort Worth	2,691.04	6,065.24
Lenix, J. H., Amarillo	3,026.03	3,825.67
Lamb, George E., Brownwood	194.67	400.98
Laclede Petroleum Co., Dallas	101.00	202.00
Lewis, J. E., & Co., Eastland	776.54	1,888.24
Lesh-Kilcrease & Co., Nocona	7,852.36	12,446.25
Lewis, M. L., Wichita Falls	818.05	1,863.38
Levy, Leonard M., trustee No. 2, Fort Worth	3,014.07	7,640.40
Liberty Oil & Gas Trust, Baltimore, Md.	2,155.53	4,318.93
Long, F. M., Humble	749.52	1,118.17
Lake Graham Oil Co., Houston	454.02	761.68
Lackey, W. G., Tulsa, Okla.	6,781.40	15,290.71
Lay Oil Co., Cisco	247.52	488.04
Lain Oil Co., Somerset	1,640.38	2,763.22
Lawson, Eugene B., Nowata, Okla.	66,347.90	150,007.02
Langford, W. S., Wichita Falls	1,768.87	3,895.93
Little William, Breckenridge	237.89	459.60
Lone Star Gas Co., Dallas	15,713.76	36,277.95
Lebow, C. H., Tulsa, Okla.	918.65	2,165.79
Lake View Oil Co., Sour Lake	16,575.23	23,205.36
Linedo Oil Co., Lincoln, Neb.	2,930.26	3,662.83
Louisiana Oil & Refining Co., Shreveport, La.	38,118.48	77,133.24
Levy, Lenord M., trustee No. 1, Ranger	4,097.03	10,326.18
Mecom Oil Co., Houston	10,507.44	14,710.42
Moore, C. O., Oil Corp., St. Louis, Mo.	19,337.58	45,522.56

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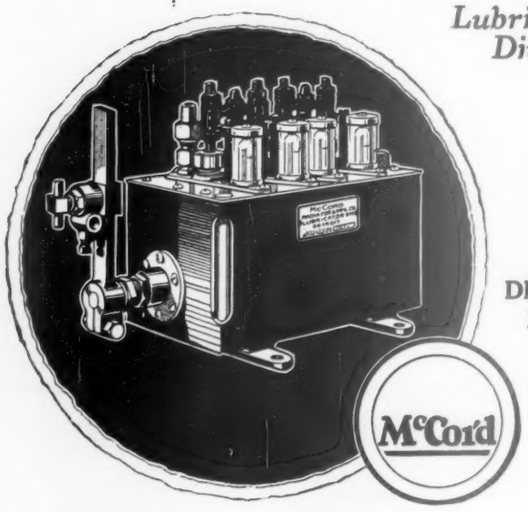

DETROIT, MICH.

Name. Address—	Bbls.	Value
Miller Oil Co., Electra	458.67	819.48
Mendenhall Oil Co., Cross Cut	5,298.56	13,152.56
Moutray Oil Co., Abilene	90,048.76	197,729.83
M. & V. Oil Co., Wichita Falls	10,120.18	23,023.41
Montgomery, Rea & Montgomery, Sedwick	3,556.32	7,798.72
Mary Elizabeth Oil Co., Dallas	4.71	11.31
Moss & Urscherl, Mexia	1,766.04	3,973.59
Moss, Urscherl & Keys, Mexia	5,161.33	9,806.52
Moss & Keeling, Mexia	4,948.15	11,727.11
Moss & Keeling et al, Mexia	76,682.40	164,866.16
Minnehoma Oil & Gas Co. et al, Tulsa, Okla.	6,233.16	7,964.62
Marrary Oil Corp., Tulsa, Okla.	4,240.86	8,779.89
Madison Oil & Gas Co., Fort Worth	7,496.43	19,329.94
Meredith, J. D., Moran	3,957.39	7,179.94
Magee Brothers, Electra	1,118.88	2,596.02
Magee & Stipe, Electra	1,871.58	4,551.36
Mann, George P., Minerva	945.45	2,107.26
Moran, W. J., Wichita Falls	2,775.90	6,266.71
Miller & Miller, Putnam	1,461.20	3,301.21
Maxson & Co., Wichita Falls	2,724.28	6,225.56
Minntex Oil Corp., Wichita Falls	828.93	1,529.62
Mahlsteat Oil Co., Fort Worth	1,247.35	2,999.64
Mills Bennett Production Co., Houston	35,456.16	56,498.41
Milham Corp. of Texas, San Antonio	135,877.99	275,524.68
Midwest Exploration Co., Amarillo	189,318.19	276,221.38
Moody Corp., Houston	34,620.84	48,130.84
Magnolia Petroleum Co., Dallas	2,764,045.81	4,555,982.62
Mid-Continent Petroleum Corp., Tulsa, Okla.	17,008.04	40,262.68
Marnet Oil & Gas Co., Tulsa, Okla.	4,336.42	9,170.26
Mitcham, G. P., Cisco	833.67	1,655.02
Milham Production Co., Inc., Rockdale	1,350.17	2,842.24
Mann & Forbes, Graham	2,708.50	6,228.60
Marzulla Brothers, Humble	2,556.04	3,578.40
Midwest & Gulf Co. of Texas, trust estate, Tulsa, Okla.	747.70	1,373.52
Morton, A. D., Bartlesville, Okla.	545.72	1,064.15
Moore, F. L., trustee, Tulsa, Okla.	3,879.48	8,503.72
Moore & Lewis et al, Eastland	3,195.90	6,926.13
Meridian Petroleum Corp. of Texas, Tulsa, Okla.	4,172.89	8,866.80
Mook-Texas Oil Co., Fort Worth	4,381.07	9,585.85
Mid-Kansas Oil & Gas Co., Findlay, Ohio	84,725.49	186,870.43
Moore, N. A., Eastland	715.85	1,478.30
Majestic Gasoline Co., Fort Worth	23.13	49.27
Muse & MacDermott, Fort Worth	539.75	1,090.05
Matador Oil & Gas Co., Quanah	260.00	618.74
Mennis, G. W., Wichita Falls	2,527.27	5,915.88
Martin, A., receiver, Laredo	15,447.22	19,309.00
Macknold Co., San Antonio	340.29	553.59
Moore & Henderson, Tulsa, Okla.	856.84	1,769.87
Minor Oil Co., Beaumont	7,208.05	10,091.27
Maer & Staniforth, Wichita Falls	5,062.61	10,689.35
Madden & Hunt, Olney	23,479.68	51,082.69
Minerva Petroleum Co., Minerva	1,594.17	3,496.64
Marland Oil Co. of Texas, Fort Worth	1,918,869.15	2,596,990.76
Mann, L. T., administrator, and Cosmopolitan Oil, Wichita Falls	1,247.25	2,495.70
Mann, F. A., Graham	1,347.00	3,191.65
McDonald, A. C., Putnam	4,651.70	10,709.14
Maben Oil Corp., Wichita Falls	497.85	1,024.90
Medina Oil & Gas Association, San Antonio	300.74	503.23
Mancill, R. W., trustee, Cisco	324.24	733.00
Moutray & Son, Abilene	639.08	1,306.52
Mohegan Oil Co., Mohegan Lake, N. Y.	274.36	514.73
Moss Farm Oil Co., Wichita Falls	288.63	599.90
Mills & Garrity, Corsicana	1,654.80	2,995.96
Martin & Harrison, Houston	1,671.28	2,339.79
Martin Petroleum Co., Humble	4,064.00	5,690.00
McLester Oil Co., Breckenridge	4,662.00	9,895.00
McMan Oil & Gas Co., Tulsa, Okla.	1,208,714.76	1,602,652.24
McClure, W. D., & Son, Iowa Park	489.69	1,183.35
McGregor, Stanley, Wichita Falls	2,520.59	5,337.92
McCutchen, C. E., trustee, Wichita Falls	14,286.10	31,809.28
McLester Oil Co., Eastland	17,992.00	44,982.08
McKanna, James E., Wichita Falls	48,236.52	118,296.09
McEwan, J. P., trustee, Fort Worth	1,487.37	3,279.34
McDaniel, E. R., Cisco	2,789.11	6,551.42
McNallen & Griffin, Tulsa, Okla.	5,889.95	12,425.76
McNamara Oil Co., Beaumont	3,078.15	4,309.41
McIlroy Oil Co., Amarillo	25,685.49	32,223.64
McDonald, W. W., et al, Dallas	4,188.35	9,028.27
McCarty Oil Co., Wichita Falls	87,598.35	199,625.91
McCarter, R. C., Cisco	237.64	519.05
McCrary, E. W., Tulsa, Okla.	3,645.75	7,431.93
McBride, W. C., Inc., St. Louis, Mo.	3,482.72	5,419.06
McLester, Jerome, Cisco	1,134.12	2,324.94
Nash & Windfohr Oil Corp., Graham	6,830.00	16,488.34
National Supply Co. of Texas, Fort Worth	458.92	1,068.51
National Oil Co., San Antonio	1,102.01	1,173.20
Newport & Ohio Petroleum Co., Newport, N. Y.	556.89	1,251.72
Noack Oil Co., Rockdale	1,978.76	4,155.39
Norman Oil Co., Wichita Falls	280.90	879.84
Number Nine Oil Co., Tulsa, Okla.	3,326.36	8,312.37
Navarro Oil Co., Houston	3,303.96	7,784.35
National Petroleum & Refining Co., Wichita Falls	123,374.44	195,296.50
Noble Oil & Gas Co., Tulsa, Okla.	1,169.46	2,725.60
Newby Oil Co., Amarillo	4,080.20	8,591.07
New Domain Oil & Gas Co., Pittsburgh, Pa.	4,516.67	5,302.44
National Supply Co. of Texas, Toledo, Ohio	16,759.62	23,247.30
Nunn-McAuley Oil Co., Amarillo	17.46	28.81
Noble Thomas Oil Co., Wichita Falls	10,653.40	17,500.00
National Supply Co. of Texas, Fort Worth	2,224.97	4,227.44
Necessity Oil Corp., Dallas	148.75	376.34
Newton & Palmer Oil Co., Rockdale	1,417.24	2,523.97
	3,767.41	8,221.76
Oktah Co., The, Tulsa, Okla.	1,068.56	2,465.10
Ocean Oil & Refining Co., El Paso	1,079.80	1,855.74
O'Neil, H. A., Burkburnett	2,867.00	6,744.77
Omohundro, W. B., Wichita Falls	2,668.84	6,214.62
Overby, J. D., Iowa Park	792.93	1,759.91
O'Neil, John, Wichita Falls	19,901.66	49,937.76
Osage Development Co., Bartlesville, Okla.	1,948.24	2,435.30
Owenwood Oil Corp., Fort Worth	3,258.00	6,785.08
Oil Investment Co., Wichita Falls	5,760.62	12,479.23
Offenbacher, Emile, Tulsa, Okla.	340.74	726.72
Olean Petroleum Co., Bristow, Okla.	49,033.83	67,334.10
Old Ocean Oil Co., Kansas City, Mo.	6,453.34	9,392.21
Owenwood Pool No. 3 (J. W. Robbins, trustee), Fort Worth	10,316.80	20,943.10
Overby, W. W., lease (Lee Wilson), Wichita Falls	333.06	783.45
Olney Oil & Refining Co., Olney	761.35	1,617.98
Oil State Petroleum Co., Enid, Okla.	493.44	500.76
Old Colony Oil Co., Dayton	3,082.63	4,315.68
Orange Petroleum Corp., Orange	52,760.70	80,424.65
O'Donohoe Gates Drilling Co., Wichita Falls	8,034.16	18,208.50
Oil Operators Trust, Fort Worth	8,273.94	13,186.30
Omilak Oil Co., Spokane, Wash.	415.76	715.41
Oasis Oil Co., Wichita Falls	754.61	1,456.57
Ohio Somerset Oil Co., San Antonio	2,020.06	2,868.48
Oriental Oil Co., Dallas	1,308.37	2,949.31
Orth, Thomas, R. T., Wichita Falls	363.48	800.70
Oldom, W. P., Iowa Park	2,068.32	4,798.73
Owens Oil Co., Brownwood	3,154.17	5,386.61
Prairie Lee Production Co., San Antonio	16,652.80	21,648.64
Pioneer Oil, Gas & Refining Co., Danville, Ill.	1,389.88	2,474.73
Pilkerton, F. L., Burkburnett	2,895.81	6,892.03
Petroleum Investment Co., Wichita Falls	7,241.25	16,339.37
Primrose Oil Co., Sour Lake	1,095.37	1,533.52
Pivoto, M. E., Sour Lake	4,756.03	6,658.44
Piper, L. E., trustee, Vernon	2,344.06	4,945.35
Powell, J. L., Wichita Falls	405.62	821.38
Parry Oil Co. of Texas, Inc., Fort Worth	1,571.83	3,300.04
Prescott Phoenix Oil & Gas Co., Muskogee, Okla.	209.11	443.03
Prather, Ed, special, Houston	213.85	551.03
Proctor Oil Co., Wich'ta Falls	888.59	2,337.59
Price-Russell Co., Ranger	8,119.32	19,002.99
Porch, Telshaw & Cady, Houston	935.92	1,548.22
Paraffine Oil Co., Houston	12,734.59	18,293.19
Pois, M., trustee, Wichita Falls	432.98	961.18
Phillips, J. R.-J. J. and Thomas Currie, Amarillo	134,414.35	169,920.80
Palmer Freddie Oil Co., Rockdale	187.45	412.98
Pattison-Lenix Oil Co., Amarillo	74,669.20	88,428.29
Palo Duro Oil Co., Amarillo	32,685.89	42,543.44
Pantex Oil Co., Amarillo	251,192.87	313,991.19

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Keeping Out Water—*Permanently*

SUCCESSFUL, efficient oil well cementing is not simply a question of speed—though that's always essential—it's a question of permanent results. Wells cemented off with MasterKem stay water tight indefinitely, because MasterKem is a permanent waterproofing agent which does not depend merely on increasing the density of the cement, but actually introduces the water repellent element that seals out water year after year.

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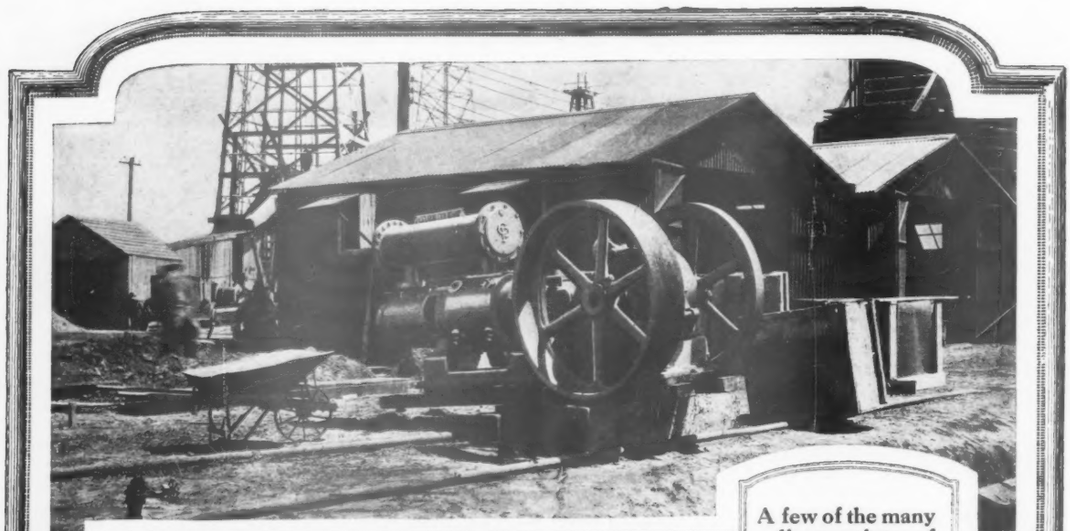

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Chicago Pneumatic Air Compressors Type N-CTB are popular machines for oil field work, and particularly for flowing oil wells because of their economy and dependability. One of these CP Compressors is delivering 600 barrels of oil daily from a well that had been abandoned. It is not unusual to hear reports of increases in production up to 300% when Chicago Pneumatic Compressors are used for flowing oil wells.

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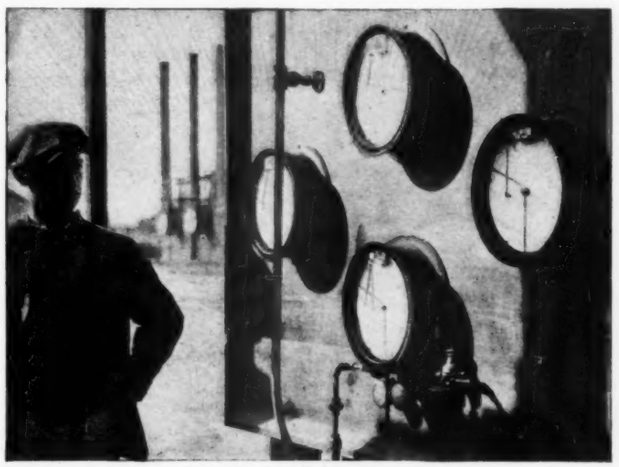
CHICAGO CP PNEUMATIC

Name. Address—	Bbls.	Value
Parsons, Ed. V., Fort Worth	232.63	549.96
Planet Petroleum Co., Bartlesville, Okla.	43,930.33	103,521.82
Pentagon Oil & Gas Co., Fort Worth	56.04	137.31
Petroleum Development Co., New York, N. Y.	1,143.69	2,458.93
Pomona Mutual Oil Syndicate, Pomona, Calif	5,314.12	12,588.75
Philp Brothers, Beaumont	2,196.87	2,950.22
Powers Production Co., Houston	3,683.92	5,371.43
Patterson, W. A., Fort Worth	3,365.77	8,015.86
Peery-Moran & Woody, Wichita Falls	2,877.86	6,496.15
Putnam Oil Co., Tulsa, Okla.	20,861.61	45,895.36
Perkins, J. J., Wichita Falls	4,503.18	10,427.42
Perkins & Cullum, Wichita Falls	70,810.80	160,998.45
Petroleum Venture Co., Somerset	329.00	526.40
Pandem Oil Corp., Dallas	103,521.63	231,928.82
Progressive Production Co., Kansas City, Mo.	3,784.19	8,611.90
Pemnok Oil Corp., Tulsa, Okla.	32,547.47	58,239.25
Paddock & McRae, Houston	1,141.00	1,649.49
Panhandle Refining Co., Wichita Falls	79,069.47	173,162.14
Phillips Petroleum Co., Bartlesville, Okla.	3,378,143.38	4,815,023.41
Production Engineering Corp., Wichita Falls	7,987.40	18,754.29
Paggi Brothers Oil Co., Beaumont	11,188.37	15,547.43
Producers Supply & Tool Co., Marietta, Ohio	1,191.94	2,588.90
Peerless Oil & Gas Co., Tulsa, Okla.	1,640.33	3,657.34
Pace, George L., Wichita Falls	1,581.39	3,641.87
Prairie Oil & Gas Co., Independence, Kans.	1,084,207.70	1,744,889.02
Pure Oil Co., Chicago, Ill.	1,084,188.70	1,657,205.98
Poor Boy Oil Co., Rockdale	964.08	2,129.11
Plummer, W. A., Wichita Falls	1,186.00	2,609.46
Priddy, Walter M., Wichita Falls	11,176.20	23,693.54
Penn, Robert R., Dallas	697.38	1,530.25
Petroleum Producers Co., Wichita Falls	179,532.83	413,425.32
Prairie Oil & Gas Co., Independence, Kans.	77,957.55	121,015.46
Pace & Ward, Breckenridge	2,190.13	4,643.07
Pitzer & West, Breckenridge	28,251.17	65,260.20
Paggi, Charles, & Co., Beaumont	5,269.20	7,376.88
Prescott Phoenix Oil & Gas Co., Wichita Falls	1,658.13	3,484.00
Payne, F. G., et al, Wichita Falls	2,919.06	6,859.79
Pois, M., trustee, Waggoner et al, Wichita Falls	8,224.48	19,160.41
Preston Oil & Gas Co., Brownwood	371.57	788.48
P-M Drilling Co., Ross & Samuel and A. J. Farley, Chelsea, Okla.	419.86	954.79
Phillips & Milam, Chelsea, Okla.	137.37	306.15
Plains Production Co., Wichita Falls	11,591.84	28,750.50
Quakins Petroleum Co., Ranger	4,880.86	11,651.27
Quincy Oil Co., Electra	146.76	336.41
Ruff, W. L., Wichita Falls	1,771.15	4,639.93
Ross & Slicker Oil Co., Fort Worth	1,239.20	2,730.77
Rayzor, J. P., Wichita Falls	349.89	752.26
Reelin Gas & Oil Co., Carthage	771.68	1,428.60
Robinson, Arthur D., Dallas	7,630.06	19,516.06
Rubsam & Hunter, Wichita Falls	4,757.13	11,244.85
Roberts, M. C. & S. G., Dallas	424.34	482.02
Ramming, Staley & Ramming, Wichita Falls	874.35	1,945.33
Ramming & Saunders, Wichita Falls	4,693.23	11,009.10
Ramming, W. F., Wichita Falls	41.15	94.11
Ramming, R. W., Wichita Falls	6.56	14.56
Reclamation Co., The, Fort Worth	11,976.10	25,506.05
Ruby Oil Co., Minerva	248.77	549.81
Regna Oil Co., Saratoga	5,271.64	6,364.84
Rentex Oil Co., San Antonio	10,532.38	19,652.37
Rowe, J. G., Wichita Falls	4,006.97	7,977.65
Rountree, Ramsel & Kemp, Rockdale	1,160.97	2,617.58
Rountree, White & Simpson, Rockdale	3,611.99	8,344.62
Relief Oil Co., Amarillo	51,541.37	76,234.57
Rountree & Simpson, Rockdale	239.04	557.27
Rainer & Bailey, Wichita Falls	2,813.60	6,554.89
Rockdale, Jr., Oil Co., Rockdale	1,877.21	4,223.72
Ross Brothers, Wichita Falls	1,970.50	4,516.64
Rowe, M. D., Wichita Falls	1,470.54	3,428.99
Sinclair Oil & Gas Co., Houston	120,539.54	178,062.14
Rio Bravo Oil Co., Houston	1,794,472.33	2,786,152.57
Rosenberg, Jacob, Tulsa, Okla.	197.17	418.87
Rosenberg, Jacob, trustee, Tulsa, Okla.	53.60	111.02
Roeser & Pendleton, Inc., Fort Worth	572,873.44	1,229,419.13
Rio Grande Petroleum Corp., Houston	5,580.72	6,976.91
Ryeade Oil Corp., Houston	116,997.97	167,159.27
Roxana Petroleum Corp., St. Louis, Mo.	465,738.95	732,564.98
Root & Rhodes, Eastland	9,940.00	24,140.00
Root, C. M., Eastland	4,395.00	9,775.00
Root-Rhodes et al, Eastland	54,977.00	127,718.84
Root, C. M., et al, Eastland	2,416.00	5,185.00
Russell & Wilson (Prideaux lease), Wichita Falls	2,424.16	4,939.89
Ruyle Farm Oil Co., Wichita Falls	9,627.23	23,256.93
Rockdale Development Co., Inc., Rockdale	1,568.82	3,377.60
Rex Petroleum Corp., Orange	42,144.91	59,416.89
Ross Segunda Oil Co., Laredo	1,072.36	1,395.21
Ryan Consolidated Petroleum Corp., Bartlesville, Okla.	99,919.44	191,046.50
Ruthada Oil Co., Oklahoma City	21,871.32	29,227.98
Ross Amigos Oil Co., Laredo	10,868.47	13,585.58
Republic Production Co., Houston	723,792.15	1,030,689.90
Reiter-Foster Oil Corp., Wichita Falls	9,626.74	20,513.35
Rosson-Thomson, Mexia	9,289.66	20,615.85
Reamer Oil Co., Wichita Falls	93.20	228.34
Red Bank Oil Co., Tulsa, Okla.	49,074.55	111,473.09
Reinhart, M. J., trustee, Oklahoma City, Okla.	869.58	1,953.18
Robinson, O. D., Pittsburgh, Pa.	2,036.00	3,461.20
Rockwell, J. A., Warren, Pa.	3,502.95	7,643.93
Ray & Massie, Wichita Falls	30,129.02	71,569.33
Russell-Sanderson Oil Co. No. 3, Fort Worth	1,016.08	2,255.67
Red River Oil Co., Tulsa, Okla.	16,613.27	37,264.18
Robert Oil Corp., Breckenridge	16,700.55	37,850.47
Ridgeway, G. R., Wichita Falls	1,360.20	2,898.91
Rhodes & Highers, Breckenridge	8,024.90	17,173.28
Rhader & Carey, Wichita Falls	4,203.10	8,868.54
Ray Featherstone Oil Co., Inc., Wichita Falls	2,858.00	6,568.67
Seybert Brothers & Barger, Mooringsport, La.	2,354.69	5,361.86
Stoops, J. P., Ranger	299.02	583.49
Sedwick Oil Co., Tulsa, Okla.	13,494.70	27,189.58
Silk, Bullington & Clark, Wichita Falls	9,619.47	12,024.24
Skia-Tex Petroleum Co., Skiatook, Okla.	59,110.51	74,736.62
Schuls & Pois, Wichita Falls	1,172.52	2,706.36
Strip, George, Beggs, Fort Worth	3,050.39	7,765.47
Smith, E. L., Oil Co., Mexia	104,713.86	229,712.51
Swanner, John L., Wichita Falls	3,439.28	7,565.90
Swicegood, F. L., trustee, Eastland	189.14	441.56
Somerset Oil Co. of Massachusetts, Easthampton, Mass.	95.28	141.01
Schafner, E. N., Cross Plains	257.84	606.97
Schafner, E. N. and J. F., Cross Plains	915.78	2,241.93
Simms Oil Co., Dallas	486,087.68	982,026.97
St. Louis Oil & Development Co., Wichita Falls	454.98	1,050.91
Shaw, Fox & Adams, Burkett	3,381.36	5,985.89
Superior Oil Co., Superior, Wis.	369.99	.....
Salado Oil Co., San Antonio	2,108.19	4,064.65
Supreme Oil Co., Orange	9,022.95	12,632.14
Sunburst Oil Co., Amarillo	63,074.83	75,644.71
Sheldon, W. J., Electra	7,261.54	16,927.68
Stroube & Stroube, Corsicana	70,321.55	152,957.87
Southern Crude Purchasing Co., Shreveport, La.	6,800.00	6,800.00
Stock, H. L., Cisco	5,642.31	13,949.80
Schermerhorn Oil Co., Tulsa, Okla.	2,835.38	5,776.53
Staley Mashburn Oil Co., Wichita Falls	354.31	763.97
Silurian Oil Co., The, St. Louis, Mo.	4,438.11	10,068.78
Stribling, J. C., Sour Lake	1,036.00	2,072.00
Stafford & Hays, Graham	2,061.14	3,395.86
Shamrock Petroleum Co., Wichita Falls	26,240.65	51,120.15
Snider, C. W., Wichita Falls	2,271.17	5,784.58
Skelly Oil Co., Tulsa, Okla.	710,784.50	775,030.91
Sun Oil Co., Dallas	764,467.85	1,273,757.29
Scott & Britton, Graham	228.58	480.48
Superior Oil Producing Co., Lexington, Ky.	2,383.57	5,399.69
Speed, C. D., Corsicana	236.44	515.99
Summerfield Oil Co., Tulsa, Okla.	320.61	701.73
Sunny Jim O'l Co., Tulsa, Okla.	195.42	361.53
Sinclair Oil & Gas Co., Tulsa, Okla.	55,044.43	127,298.79
Smith, J. L., Amarillo	18,909.26	23,631.57



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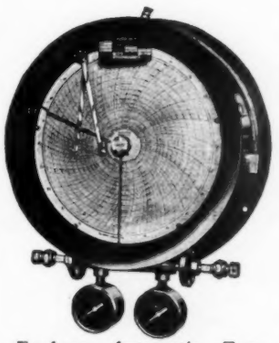

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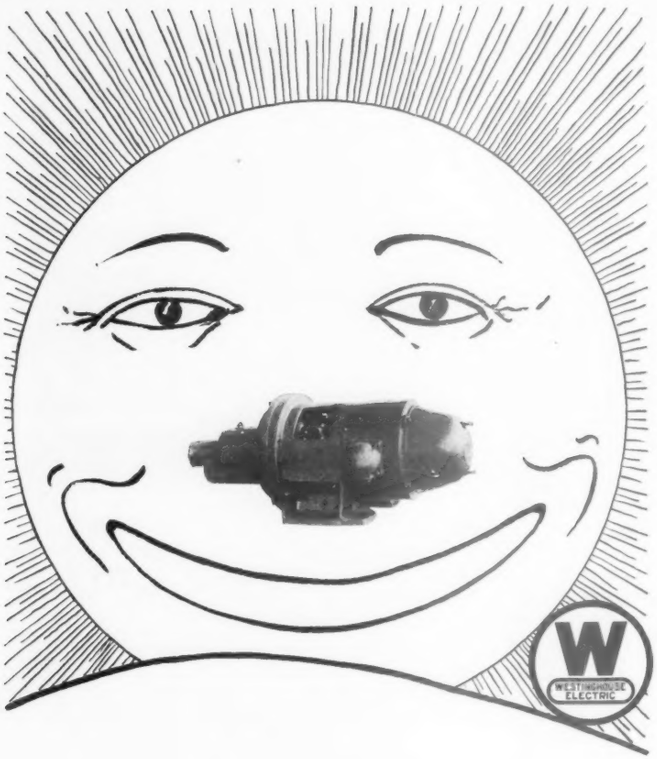

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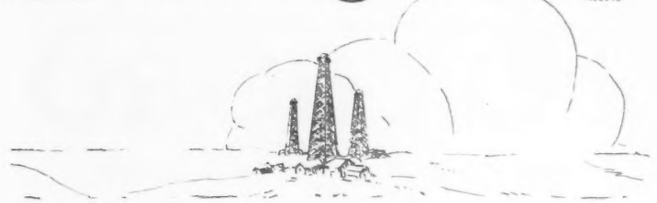
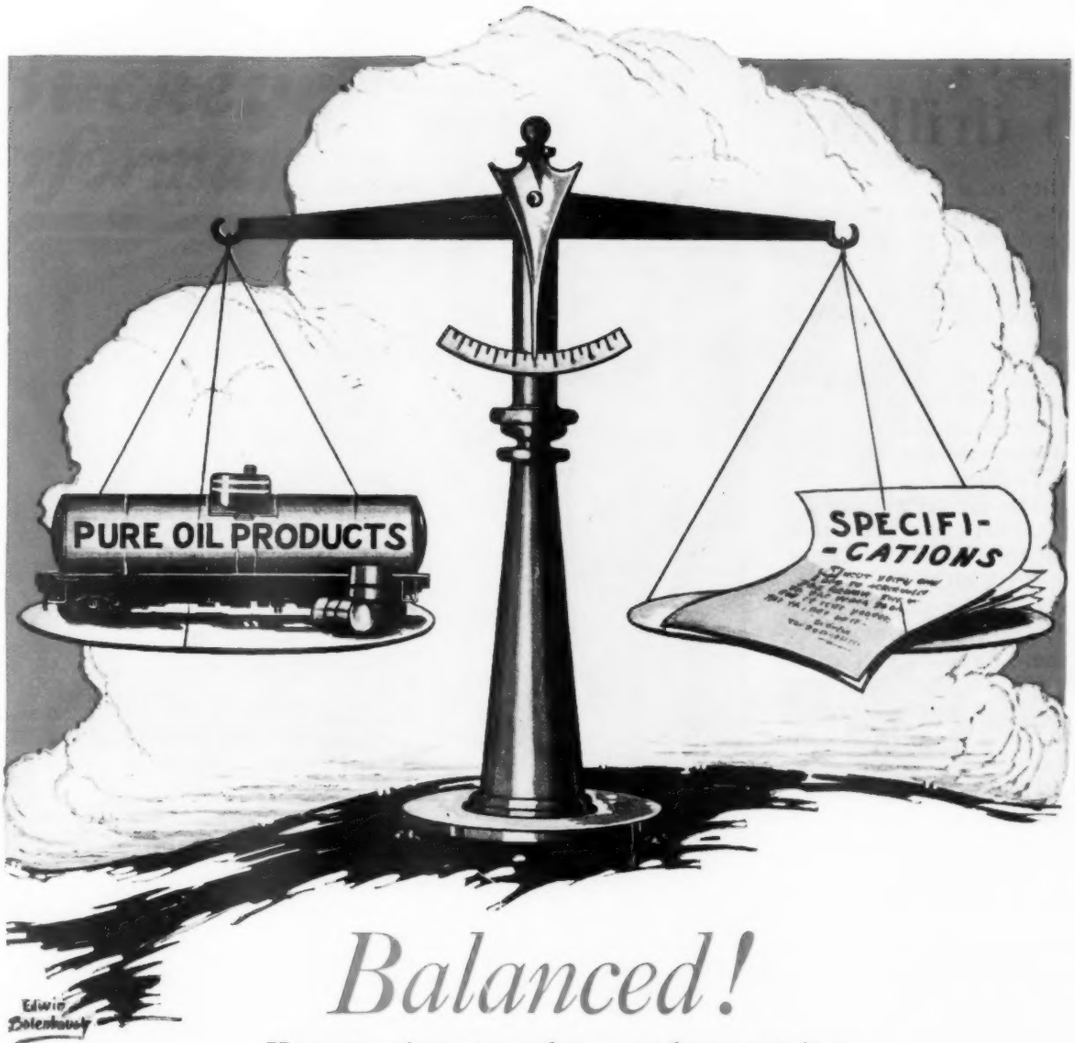


Name, Address—	Bbls.	Value
Smith & Bynum, Amarillo	13,177.15	16,471.43
Sunrise Oil Co., Amarillo	400.00	500.00
Shaw & Rathke, Wichita Falls	43,461.52	99,653.72
Security Drilling Co., Wichita Falls	2,057.41	5,320.30
Snowden & McSweeney Co., New York, N. Y.	54,684.14	130,057.41
Swensondale Oil Co., Caddo	12,873.01	28,000.80
Staley, J. L., & Co., Wichita Falls	7,250.68	16,567.12
San Bernard Oil Co., Beaumont	3,238.37	4,533.72
Somerset Oil Co., San Antonio	1,538.34	2,738.25
Shaw, Archie, Coleman	14,743.12	27,278.82
Staley, Wynne & Co., Wichita Falls	66,458.28	83,489.86
Shuler-Davies & Co., Brownwood	3,513.51	6,397.16
Schaffner-Wilson et al, Wichita Falls	11,824.97	29,115.42
Strin, Sam & Morris, Tulsa, Okla.	368.27	751.25
Stephens Oil Co., Sour Lake	551.65	772.31
Shasta Oil Co.-Apple-Brandeberry Oil Co. and F. C. Grebin, Wichita Falls	5,039.76	10,650.52
States Oil Corp., Eastland	86,174.09	208,464.50
Stovall, E. C., Graham	2,875.00	6,568.00
Shertzer Brothers, Dewey, Okla.	12,546.16	26,552.26
Sigler Oil Co., Wichita Falls	1,832.08	3,626.30
Sink, Joel, Corsicana	181.94	377.00
Silk, W. W., Wichita Falls	304.26	654.83
Slick, T. B., et al, Oklahoma City, Okla.	19,131.95	47,269.19
St. Marys Oil & Gas Co., St. Marys, W Va.	19,354.53	40,230.27
Shasta Oil Co., Clifford Moores et al, Wichita Falls	5,342.00	12,230.02
Smith-Hanlon, Inc., Tulsa, Okla.	116.37	230.28
Stephenson, Rex-Tex Oil Co. and Py-Tex Oil Co., Winchester, Ky.	25,601.00	58,882.30
Schoolfield, R. E., Wichita Falls	248.73	534.17
Smith Oil Corp., Nacogdoches	392.16	832.00
Seaboard Oil & Gas Co., Wichita Falls	42,817.67	98,160.81
Stidham & Thrasher, Electra	8,940.18	21,654.20
Shade & Whittaker, Sweetwater	149.28	362.31
Strelsky & Gambell, Rockdale	756.09	1,980.89
Staley, J. A., Wichita Falls	4,750.97	11,263.21
Senter, E. G., Jr., Dallas	76.04	181.29
Schaffner & Ramsey et al, Cross Plains	1,226.82	3,398.30
Shappell Oil Co., Wichita Falls	94,775.05	221,227.30
Shackelford Oil Co., Putnam	3,464.21	7,309.24
Strawn Petroleum Co., Denver, Colo.	6,871.28	16,469.03
Swastika Petroleum Corp., Wichita, Kans.	1,055.69	2,453.92
Southern Petroleum Exploration, Inc., Abilene	590.00	885.00
Saunders, John R., Wichita Falls	41.15	94.11
Strelsky & Gambill, Rockdale	238.71	489.35
Somerset Crude Oil Refining Co., Somerset	5,264.09	9,418.55
Sheman Oil & Gas Co., Pittsburgh, Pa.	128.48	267.43
Skinner, E. W., Oil Co., Saratoga	3,041.74	4,258.43
Stella Oil Co., Beaumont	9,982.65	13,057.66
Standard Oil Land & Leasing Co., Electra	320.03	746.60
Strauss Allen Oil Co., Wichita Falls	3,271.36	7,808.61
Sircovich & Thomas, Houston	2,027.07	3,157.35
Sessions, I. P., Rockdale	501.86	1,135.93
Star Drilling Co., Wichita Falls	9,668.43	23,061.01
Sheffield, Teichow & Conkling, Houston (9/30)	467.40	871.02
Sheffield, Teichow & Conkling, Houston	1,035.89	1,439.85
Saratoga Oil Co., Wichita Falls	2,813.54	6,680.24
Schlicher Oil Co., Beaumont	1,025.10	1,435.14
Stull, R. O., Wichita Falls	20.00	43.72
Sindorf & Sindorf, Caddo	1,201.92	2,445.59
Scarbrough, W. A., Burkburnett	1,928.93	6,190.02
Summit Oil Corp., Amarillo	26,741.24	33,426.55
Southern Exploration Co., Houston	5,515.86	8,557.97
Stafford & Hayes, Graham	1,021.43	1,543.50
Spring Creek Oil Co., Amarillo	50,404.36	64,078.34
Tidwell, R. V., trustee, Whittenberg lease, Graham	4,471.13	9,827.70
Tidwell, R. V., trustee, Kisinger lease, Graham	768.63	1,653.79
Tidwell, R. V., trustee, Castello lease, Graham	861.22	1,861.19
Tidwell, R. V., trustee, Hughes lease, Graham	726.75	1,621.43
Tidwell, R. V., trustee, Bowyers lease, Graham	792.56	1,768.13
Texas Fidelity Oil Corp., Louisville, Ky.	45,202.51	102,073.61
Thompson & McKinnis, Ranger	1,019.60	2,538.80
Thaxton, W. H., estate, Austin	305.88	666.81
Travelers Oil Co., Amarillo	47,520.18	57,222.03
Tolbert Johnnie Oil Co., Midlothian	2,731.00	6,317.85
Tulsa Co., The, Wichita Falls	3,646.59	7,871.34
Talley, Oscar, trustee, Burkburnett	335.00	800.65
Thomson & Morrison, Colorado	2,000.57	3,149.02
Triangle Oil Co., Wichita Falls	714.79	1,652.49
Texota Petroleum Co., Electra	540.00	1,296.00
Texas Consolidated Oil Co., San Francisco, Calif.	15,459.55	35,578.04
Teatsorth, L., et al, Eastland	4,355.58	9,963.21
Transcontinental Oil Co., Tulsa, Okla.	6,723.17	14,127.65
Transcontinental Oil Co., Tulsa, Okla.	503,080.75	1,137,911.77
Tillery, L. J., Oil, Inc., Beaumont	10,148.51	14,358.58
Tidal Oil Co., Tulsa, Okla.	136,823.28	282,858.29
Tidal Osage Oil Co., Tulsa, Okla.	13,723.51	30,641.73
Travis Oil Co., Fort Worth	123.99	235.58
Texas Company, The, Houston	2,712,872.96	4,892,286.91
Tinsbin, W. E., Wichita Falls	173.81	400.31
Two Republic Oil & Gas Co., Laredo	10,883.22	13,604.03
Texas Southern Oil & Development Co., San Antonio	1,889.61	3,680.88
Triangle Oil Co., Amarillo	177,070.91	224,433.01
Triangle Oil & Gas Co., Rockdale	5,184.76	11,263.09
Tannehill, L. B., Albany	28,407.11	59,423.15
Texas Pacific Coal & Oil Co., Thurber	192,070.58	427,301.00
Other companies for Texas Pacific C. & O. Co., Thurber	110,635.72	248,057.63
Tripplehorn, J. W. & D. R., Fort Worth	3,351.26	7,454.27
Tyson Oil Co., Sour Lake	869.21	1,216.89
Taylor-Sibley Syndicate, Dallas	2,223.06	5,058.83
Texas Exploration Co., Houston	5,582.59	7,915.62
Tucker & Langford, Inc., Wichita Falls	67,164.25	151,742.61
Texon Oil & Land Co. of Texas, Big Lake	789.96	1,429.64
Tucker & Fox, Dallas	4,620.18	10,016.92
Tucker, W. B., Dallas	2,367.81	5,032.66
Texas Oil Corp., Dallas	159.29	338.12
Tholl Oil Co., Beaumont	7,642.13	17,918.77
Tegler, T. E., San Antonio	375.00	562.50
Theis Oil Co., Sour Lake	5,277.33	7,388.27
Trimount Petroleum Co., Shreveport, La.	9,976.03	23,457.51
Texas Electric Co., Columbus, Ohio	403.08	957.27
Thomasson, E. M., & Co., Inc., Denver, Colo.	2,147.42	5,490.86
Trans-Bay Oil Co., Galveston	60.00	84.00
Tillman, J. W., Humble	244.70	342.58
Texas Unity Oil Co., Dallas	8,918.88	21,382.84
Texas Development Co. et al, Eastland	512.66	1,026.60
Trinity Production Co., Wichita Falls	771.89	1,727.11
Texas Petroleum Development Co., Cameron	9,144.37	20,144.01
Ungren & Frazier, Putnam	474.52	935.90
United Oil & Fuel Co., Philadelphia, Pa.	2,086.65	2,921.31
U. C. Texas Oil Corp., Dallas	3,934.28	8,144.56
Upham Gas Co. of Texas, Mineral Wells	427.61	1,285.09
Unity Oil Co., Beaumont	31,552.62	43,225.00
Union Production Co., Inc., Rockdale	6,577.31	14,559.68
Unice & Carpenter, Houston	33,813.25	63,972.64
Unice, Charles J., Houston	1,847.00	2,663.45
United Production Co., Inc., Wichita Falls	1,592.00	3,712.00
Urban, Andrew, Abilene	1,731.04	3,987.95
Val Verde Oil Co., Del Rio	2,611.00	4,527.26
Virginia Oil Association, Fort Worth	3,949.90	9,128.18
Vacuum Oil Co., Houston	18,073.70	25,620.57
Vancleave Trust, Baltimore, Md.	1,223.07	2,806.97
Vergate Oil Co., Tulsa, Okla.	3,872.26	8,059.78
Valley Oil Co., Wichita Falls	5,070.70	11,459.78
Ward & Fuller, Wichita Falls	147.92	343.54
White, C. N., San Antonio	12,371.99	26,731.12
Webb Oil Co., Humble	4,399.17	6,161.63
West Production Co., Houston	11,281.24	15,793.74
Woods & Bennett, Humble	7,924.89	11,095.27
White, James H., Wichita Falls	1,646.31	3,662.41
Watson, M. B., Fort Worth	1,000.00	1,500.00
Watkins, J. A., Wichita Falls	587.74	1,392.46
Wampen Oil Corp., Dallas	3,861.21	9,067.60
Weed-Gayle Oil Co., Beaumont	74,046.68	103,936.82
Wilson Drilling Co. (K. K. B.), Wichita Falls	2,331.34	5,424.57



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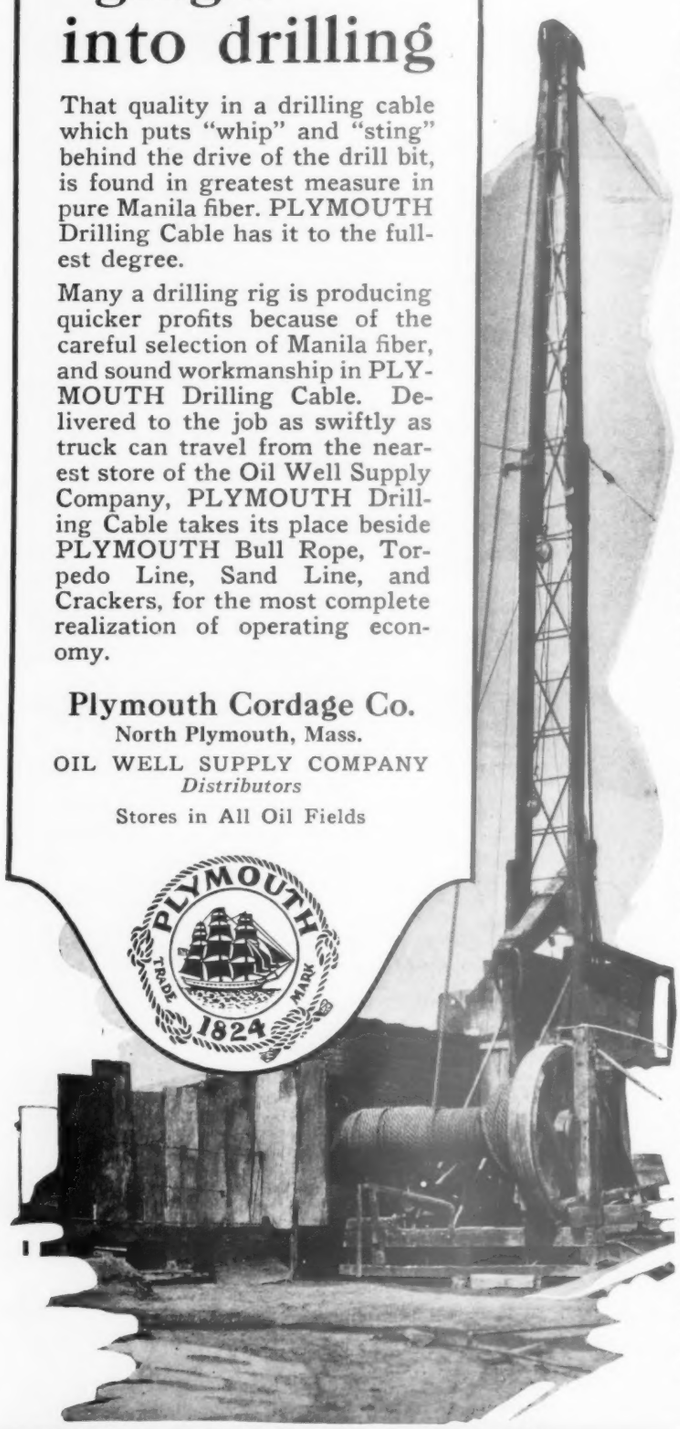

PLYMOUTH
OIL WELL CORDAGE

Name, Address—	Bbls.	Value
Wilson Drilling Co. (Comet), Wichita Falls	5,081.80	11,740.84
Wilson Drilling Co. (K. K. A.), Wichita Falls)	2,703.74	6,270.05
Wilson Drilling Co. (Snedeker), Wichita Falls	466.39	933.36
Wampoo Oil Co., Rockdale	5,229.56	10,981.07
Witcher & Mitchell, Wichita Falls	367.90	857.62
Wilson Drilling Co. (Rathke), Wichita Falls	5,161.78	11,828.96
Waggoner Refining Co., Inc., Electra	15,422.72	30,514.82
Witcher, Annie L. (Guardian), Wichita Falls	3,291.51	8,075.84
Wichita Production Co., Wichita Falls	19,332.39	45,444.07
Weber, Howard (NE ¼ of Blk. 83), Bartlesville, Okla.	1,680.66	3,358.62
Weber, Howard (SW ¼ Blk. 83), Bartlesville, Okla.	2,256.96	4,561.95
Weber, Howard (SE ¼ of NW ¼ Blk. 88), Bartlesville, Okla.	547.80	1,132.78
Weber, Howard (N ½ of S ½ of SE ¼ Blk. 88), Bartlesville, Okla.	1,317.23	2,610.94
Weber, Howard (S ½ of NE ¼ of SW ¼ Blk. 88), Bartlesville, Okla.	960.36	1,899.88
Weber, Howard (W ½ of NE ¼ of SW ¼ Blk. 88), Bartlesville, Okla.	603.41	1,233.44
Ward, C. A., Cisco	2,197.52	5,289.93
Wootten Reed et al, Graham	1,370.10	3,052.83
Wickett, F. H., Shreveport, La.	2,204.46	2,755.59
Williamson & Veale, Dallas	14,763.79	38,171.19
Weaver & Pois, Wichita Falls	8,784.77	20,145.68
Wichita Petroleum Co., Tulsa, Okla.	2,730.71	6,028.96
Wheelock & Collins, Corsicana	37,867.18	82,389.89
Weldon Oil Co., Saratoga	9,423.34	10,982.07
Weiler, J. G., et al, Cross Plains	3,303.42	8,053.65
Walker, B. S., Breckenridge	1,855.39	3,821.85
Wo-Mac Oil Co., Wichita Falls	5,675.64	11,643.82
Williams, John H., Dallas	6,817.06	15,106.49
Wilkins, L. A., Burkburnett	1,653.71	3,605.09
White & Duncan, Wichita Falls	4,242.71	8,955.55
Westervelt-Noble et al, Oklahoma City, Okla.	5,707.74	12,944.95
Wilson Broach Co., Beaumont	18,947.21	25,245.26
Witherspoon Oil Co., San Antonio	65,103.07	129,299.35
Wilson, Edward R., Oklahoma City, Okla.	2,450.27	5,608.89
White Eagle Oil & Refining Co., Kansas City, Mo.	269,104.00	342,240.00
Wilcox, H. F. Oil & Gas Co., Tulsa, Okla.	306,696.93	551,776.10
Why Not Oil Co., Mexia	12,192.53	27,739.52
Western Oil Corp. of Texas, Wichita Falls	34,310.82	64,227.55
Warren-Hayes Oil Corp., Cisco	654.92	1,537.44
Williams, J. F., et al, Cisco	875.43	1,820.27
Wood, H. J., trustee, Cisco	571.83	946.15
Wentz, L. H. (oil division), Ponca City, Okla.	27,944.54	45,930.97
Wood-Benton, Lesh & McCall, Nocona	24,280.00	39,177.69
Weisman, S., McKinney	25.72	63.01
Western Oil Sales Corp., Wichita Falls	1,444.46	3,329.43
Wilson-King et al, Wichita Falls	20.00	43.72
Westheimer & Daube, Ardmore, Okla.	1,147.39	2,467.38
Woodburn Oil Corp., Dallas	11,604.14	24,766.17
Wallace, Dr. Charles William, and wife, Wichita Falls	46,530.65	105,366.74
West, J. H., Cisco	9,969.21	23,607.93
Wooldridge, Good, Beaumont	1,908.86	4,763.32
Whaley Mineral Realty Trust, Fort Worth	4,368.20	9,709.43
Ward, Mrs. Fay R., Dallas	140.88	294.64
Whitehill, B. F., Tulsa, Okla.	7,396.04	16,567.99
Wolf, A. T., & Son, Wichita Falls	4,347.24	9,371.85
Whitman, G. W., Wichita Falls	350.23	716.51
Williams, Burt, Wichita Falls	1,017.05	2,125.51
World Oil Co., Fort Worth	8,650.12	11,071.21
West Adams Petroleum Corp., Eastland	25,497.75	56,103.86
Wright & Daube, Cisco	16,473.53	37,514.10
Wise & Jackson, Sapulpa, Okla.	4,339.85	9,108.57
Waggoner, R. M., Special, Wichita Falls	3,242.76	7,398.42
Wills Oil Co., Rockdale	1,819.57	3,734.49
Yuba Oil Refining Co., Nacogdoches	223.40	446.80
Yount Lee Oil Co., Beaumont	3,946,246.99	6,105,295.19
	53,477,132.04	$88,552,581.08

CENTRAL WEST FIELDS

(Continued from Page 58)

County, but usually the sand is found some higher, meaning that a structure existed there as well as in the three counties mentioned. The best production is found in the Tiffin Field, of Seneca County, where the top of the Trenton is found at from 1,400 to 1,600 feet. The best pays have been found at around 140 to 250 feet in the Trenton and these wells showed remarkable staying qualities, for as Thomas Percy, deceased, an old-time prominent producer in Pennsylvania and Ohio, used to say, little strippers in the Tiffin Field used to make more clear money than the flashy wells, as one could depend daily upon just so much production.

Petroleum Club Meets

Petroleum dealers and distributors of 10 counties in northwestern Ohio were in attendance at the monthly meeting of the Lima District Petroleum Club, held at the Hotel Barr, Lima, Ohio. Thomas B. Snow, president of the club, presided. The district club is part of a state-wide association organized for the purpose of fostering ethical business methods. John J. Klay, of Lima, is secretary and treasurer and E. L. McCrate, of Columbus Grove, is vice president. The counties represented in the Lima district include Allen, Auglaize, Hardin, Paulding, Van Wert, Shelby, Logan, Mercer and Putnam. W. P. McDonald was the principal speaker at the gathering.

Indiana

Five completions were reported from Indiana, two being dry holes and three showing an initial of but 31 bbls. Practically all parts of the fields in the central-eastern portion and the southwestern portion of the state are so inundated by high waters it is impossible to accomplish anything in bringing in wells, and it will require a lot of sunshine after the water recedes to dry up the highways so material can be handled over them. The Wabash, White and Patoka Rivers, in the southwestern part of the state, are similar to the Cumberland River in Kentucky, most always out of their banks when the snow and rain comes, filling the gulleys through the hilly section, so that one can not get over the country afoot or horseback, to say nothing of the flivver, which is supposed to go most anywhere.

In Wabash Township, Adams County, the well of Robert Maybeer on the John H. Hilty 101-acre farm, Section 4, close to the town of Berne, is reported showing for a small well around 5 bbls., and connected to power. Haines and others are drilling on the Doc. Wilson farm and Kenyon and others on the George Shrank farm. In Blue Creek Township, same county, Paul Schulte and others are drilling No. 3 on the George Schrank farm, Section 20.

In southwestern Indiana, in Washington Township, Gibson County, the Ohio Oil Co.'s No. 10, in the northwest corner of the John Zimmerman farm, in the northwest quarter of Section 12, struck top of sand at 1,552 feet and went 12 feet into the sand, resulting in a production of 11 bbls. the first 24 hours at a total depth of 1,564 feet.

In Logan Township, Pike County, Charles Blosser and others' test, 600 feet from the north line and 180 feet from the west line of the Walter Wilson farm, in the southwest quarter of Section 13, proved a dry hole at a depth of 1,405 feet.

In Veale Township, Daviess County, south of Washington, Hartman and Sargent's No. 1 on the Sylvester Swan farm, Section 28, is reported showing for 15 bbls. This well is on a block of about 1,600 acres, held under lease in a solid body by this firm.

A short distance to the east of Kokomo, in Howard County, N. E. Masters is reported to have drilled a dry hole on the J. W. Miller land, and other tests are being planned for that county.

State Geologist Reports

Some interesting information is given by T. M. Kingsbury, state gas supervisor, Department of Conservation, Division of

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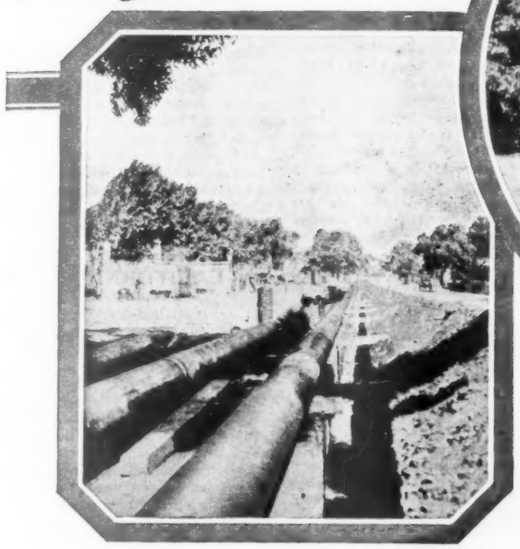

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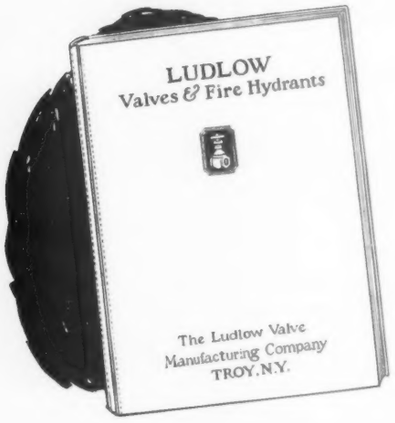

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Geology, on various developments over the state, in part as follows:

Fountain County—It is reported a test well will be started near Covington soon Some drilling was done southwest of this location a few years ago.

Henry County — Several people in Knightstown have become interested in drilling a test for oil near Blue River. Harvert Estell, who is promoting the enterprise, said the cost would be $7,000 and the test would be 2,100 to 2,300 feet deep.

Perry County — Chancellor and others are drilling on the Mrs. Hal Weatherholt farm, near Tobinsort.

Scott County—Some residents of this county are interested in drilling a test well in the southeastern part of the county.

Sullivan County—There is much activity in the Middletown Field on the Sullivan-Vigo County line. The Ohio Oil Co. has started drilling on the A. M. Stout farm, 4½ miles northeast of the Joe Thomas well, the discovery well of the Siosi Oil Co. (reported as on the John Hunt farm, Section 6, Fairbanks Township). The Ohio Oil Co. has leased 8,000 acres. The Siosi Oil Co. is drilling on the William Riggs farm, Section 31, Prairie Township, Vigo County. Another well has been started south of the Thomas well (in Fairbanks Township, Sullivan County). The Illinois Pipe Line Co. has extended a line to the new pool. In Turman Township, G. G. Billman and others are drilling on the James Huff farm, Section 26. It is reported that six rigs are in operation in the county. Two new companies, the Visu Oil & Development Co. and the Middletown Mutual Oil Co., were recently incorporated to operate in this area.

Tipton County — Interest is being shown in the repairing of an old gas well by A. V. Croddy, Atlanta, in the northern part of the county. If the repair proves successful and the old well again produces gas, it is probable many other old wells in the area will be reclaimed.

Wabash County — An effort is being made to drill a test well in the northern part of the county near Laketon. Some years ago dry holes were completed near North Manchester and Roamm. Some producing wells were drilled in the southern part of the county.

Warrick County—Two wells are being drilled in this county. The Turner Oil & Gas Co. is drilling on the Vock & Folson farm, Pigeon Township, Section 7, and Mullins and others are drilling on the Charles Watt farm, Section 1.

KENTUCKY-TENNESSEE

(Continued from Page 58)

is drilling a wildcat on the V. R. Ferguson farm, three-quarters of a mile from the hamlet of Sunnydale. Cooper and Black are preparing to drill a test near Sunnydale, on the Mark Renfrew farm. Rowe and others of Lexington are planning a test on the Urban Miller farm, 2 miles south of the hamlet of Rosine.

Barren County

A few small producers were unearthed in the Glasgow Field of Barren County, although work has been held up by mud and bad weather in general.

In the Gorby Pool, J. J. Sayres' No. 7 Hatfield farm is reported at 7 bbls., while No. 10 came in as a surprise, with an initial of better than 25 bbls. Nos. 8 and 9 were dry holes.

In the Emery-Moore Pool, the Mayzell Oil Co.'s No. 3 Hade Myers farm is reported at 11 bbls., and Breeding & Jones have one of the same sized producers in No. 5 on the Deckard farm. Sinning and Merrifield's No. 2 Hale farm is a 5-bbl. pumper. New wells are drilling on all three leases.

In the Lecta Pool, 3 miles southeast of Glasgow, Hunt, Mitchell & Leech's No. 3 Van Taylor farm is a 6-bbl. pumper, and the Kentucky Petroleum Syndicate and Rennalt's second well on the S. H. Boles farm is good for 3 bbls.

In the Hall Baker Pool, Ziegler Brothers' No. 6 on the Darter Brothers farm is a 15-bbl. pumper.

Other Fields

In the Bowling Green Field of Warren County, Johnson & Julian's No. 10 on the J. L. Jenkins 373-acre farm is good for 14 bbls. In District 4, which is 12 miles east of Bowling Green, the Lincoln Oil Co.'s Nos. 1 and 2 on the A. M. Lancaster farm, are good for 3 and 6 bbls. respectively. In the same district, E. Allen's No. 1 J. W. McGuire farm was a dry hole.

In the Scottsville Field of Allen County no completions were reported as the mud and water makes it impossible to drive an auto, and one must go on horseback or afoot. Riley Hunt is drilling No. 5 on his own farm, District 2, in the Gainesville area. Harley and Coatsworth are drilling No. 6 Lon Oliver and Lee Moore is drilling No. 8 on his No. 2 farm, all in the same district.

In the Sulphur Creek Field of the Cumberland County, the Oil Fork Development Co.'s second well on the Holeman farm is reported good for 25 bbls.

In Daviess County, the Leeper Oil Co.'s second test on the John Roby farm, a few miles southwest of Pellville, showed about 2 bbls. initial.

Scottsville and Bowling Green capital is drilling a well 2 miles from Woodbury, on a block of 800 acres of land near a well drilled 32 years ago, in Butler County. Geologists who have investigated this area claim it is favorable oil territory.

CALIFORNIA FIELDS

(Continued from Page 92)

ported to be more promising than that recently tested out with negative results. A bailing test will be made some time within a day or so. The General Petroleum is scheduled to drill out the cement in No. 1 Lomita at Sunset Beach, midway between the Huntington Beach and Seal Beach Fields, tomorrow or next day, but since no major showings of importance have been logged down to 4,151 feet, the present bottom, no particular significance will be placed on operations during the next several days. The company is being delayed on account of the inclement weather.

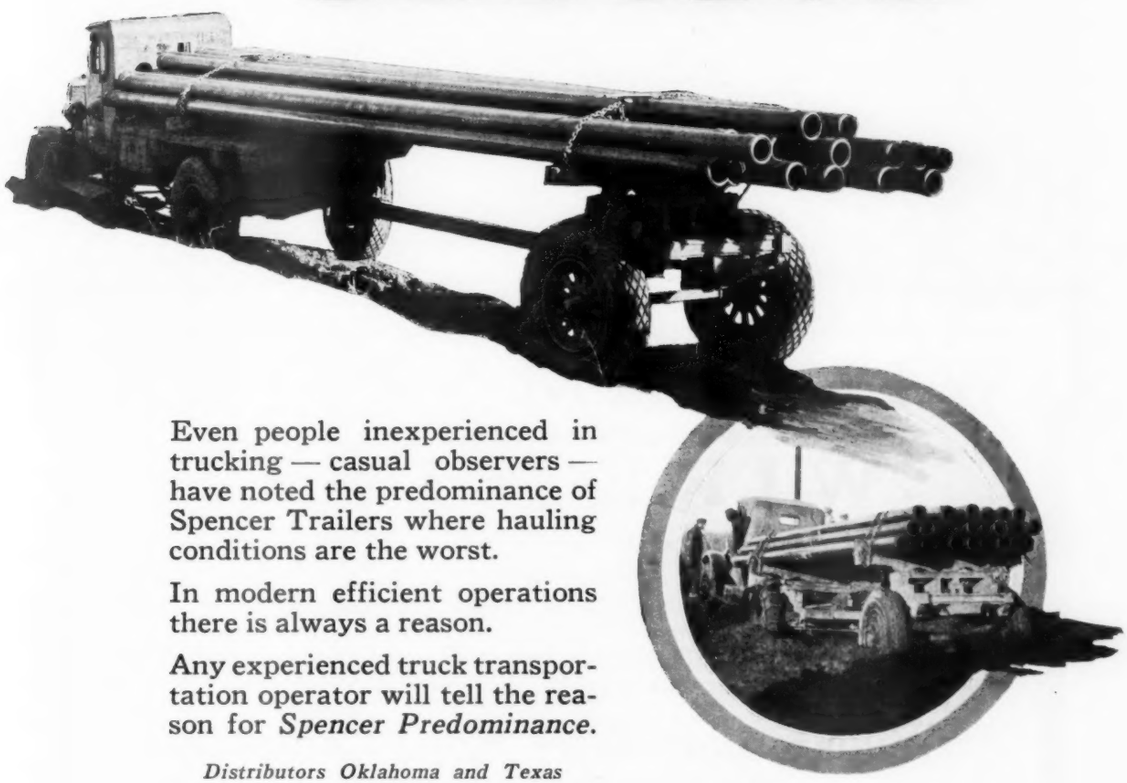
The Union Oil Co. has just passed the 4,990-foot level in No. 1 Mosser west of the northern part of the Rosecrans Field and, although only a small amount of encouragement has been received to date, drilling will be continued as the company has some extensive holdings in this vicinity which will be proved or disproved, depending upon the outcome of this wildcat. The Dominguez Extension Oil Co. has resumed drilling in its test at 4,672 feet and, while there have been one or two substantial gas showings, the outlook, as far as oil is concerned, has not shown any exceptional promise.

Northern California Wildcats

The outstanding development from a wildcatting standpoint in northern California was the acquisition by the Shell of approximately 8,000 acres of potential oil land lying between Fillmore and Piru in Ventura County. The acreage upon which the Shell has secured options is contained in the Sheldon, Shively and Felsenthal ranches and due to the large holdings acquired the company will undoubtedly start a wildcat in this area during the coming summer. The California Petroleum Corp. is also stepping out in Ventura County and has recently completed negotiations by the terms of which the company takes over five leases from the Sentinel Oil Co., approximating 400 acres. The five leases acquired are in the vicinity of Camarillo and include the Peard lease of 89 acres, upon which the initial test will be drilled, the Rasmere property aggregating 196 acres and the Gisler, Fulton, Arniel and Glen holdings totaling 350 acres. By the terms of this lease, the California Petroleum and Sentinel will participate in a 50-50 split in any production.

E. J. Miley, who is drilling three wildcats at Goleta, 12 miles west of Santa Barbara, is not yet in position to test out the potentiality of the two shallow sands found but will probably do so some time within two or three weeks. All three of the holes under way have a different objective, No. 1 going after a deep zone, while Nos. 2 and 3 will test out

Seminole and Earlsboro mud



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showings found at 1,500 feet and 660 feet, respectively. No. 3, which is a portable drilling outfit because of the shallowness of its objective, around 660 feet, was reported down 251 feet a few days ago. The Union picked up a shallow tar zone in its No. 1 Colm west of the Belridge Field at 672 feet and, while it will not result in commercial production, it is nevertheless encouraging and may result in the drilling of a deep test.

The Chanslor-Canfield Midway Oil Co. has material on ground and is building rig for another wildcat on the Quinn property near Delano in Kern County. The company's first test in this area was abandoned last year due to unfavorable formation. The Associated is abandoning No. 2 Kerman in Fresno County as a duster at 5,078 feet and, while this test had a few gas showings, the outlook was negative as far as oil was concerned. The equipment is being moved over to the Kettleman Hills area where the company drilled a 2,043-foot hole and suspended operations some time ago. Drilling will be resumed in the near future and the well carried down for a conclusive test. The Bolsa Chica has been practically standing still in this district for several weeks due to unfavorable climatic conditions but the General Petroleum is going right along with its wildcat and is drilling ahead in a blue shale at 2,501 feet.

SOUTHWEST TEXAS

(Continued from Page 51)

is drilling at 1,110 feet. Magnolia Petroleum Co. is moving on for No. 2 Benavides, S. Benavides tract, 600 feet southeast of No. 1, a gasser at 1,673 feet. Drilling has resumed in O'Hern & Seacord's No. 2 Benavides, Survey 174, Block 12, which has been whipstocked, and some trouble is being had in keeping out of the old hole; No. 5 Benavides in Block 11 of Survey 174, has been pumping 350 bbls. oil daily. Cin-Tex Petroleum Co. is moving on for No. 1 Willman. Survey 354, located 450 feet to northwest lines and 150 feet to southwest lines.

Randado Field—Jim Hogg County

Grayburg Oil Co.'s No. 13 Weil, Survey 81, Block 9, located 450 feet to east line and 750 feet to south line (location changed), has set casing at 1,303 feet in sand. Magnolia Petroleum Co.'s No. 14 Merchants State Bank, Survey 415, located 1,600 feet to west line and 700 feet to north line, has set casing at 1,256 feet; No. 16 Merchants State Bank, same survey, 1,200 feet to west line and 950 feet to north line, is rigging up; derrick is up for No. 18 Merchants State Bank, same survey, 1,850 feet to west line and 750 feet to north line; No. 19 de la Garza, Survey 291, Block 7, located 450 feet to west line and 150 feet to south line, has set casing at 1,295 feet, and derrick is up in same survey and block, 450 feet to south and west lines, for No. 20 de la Garza. Livingston-Ritchson are moving in for No. 1 Palacious, Survey 287, Block 18, 2,000 feet east of the line of production. Simms Oil Co. has made location for No. 12 Weil, Survey 81, Block 8, located 150 feet to south line and 750 feet to east line. The Texas Company's No. 1 Weil, Survey 81, Block 1, located 150 feet to south line and 450 feet to east line, at 1,322 feet tested 85 bbls. fluid, 25 bbls. of which was oil. J. L. Collins Co.'s No. 9 Palacious, Survey 291, Block 21, located 150 feet to south line and 780 feet to east line, has set casing at 1,239 feet.

Henne, Winch & Fariss Field

Magnolia Petroleum Co.'s No. 21 Martinez, Survey 276, located 1,400 feet to east line and 2,150 feet to north line, is waiting on Starr rig to make test at 2,048 feet; No. 24 Martinez, Survey 276, located 2,200 feet to east line and 2,400 feet to north line, is setting casing at 1,989 feet; No. 25 Martinez, same survey, 1600 feet to east line and 2,400 feet to north line, has derrick up; location has been made for No. 26 Martinez, same survey, 2,050 feet to east line and 2,700 feet to west line; derrick is up for No. 34 Martinez, Survey 256, Block 15, at 350 feet to north line and 450 feet to west line, and also for No. 35 Martinez, same survey and block, 400 feet to west line and 150 feet to south line.

Kitselman & St. Albans

Edward St. Albans' No. 5 Lopez, Block 7, Share 1, located 1,100 feet to west line and 150 feet to south line, has spudded in. Killam-Lang has spudded in No. 1 Lopez, Survey 69, Block 5, located 150 feet to east line and 660 feet to south line. K. & S. Corp.'s No. 52 Holbien, Survey 11, Block 11, located 350 feet to north line and 450 feet to west line, is drilling at 1,200 feet. Edward St. Albans has derrick up for No. 1 Holbien, Block 38, Hogg Ridge, Share 3, located 150 feet to north and west lines.

Schott Pool—Webb County

Magnolia Petroleum Co.'s No. 7 Garcia, Survey 592, Block 11, located 550 feet to west line and 150 feet to north line, is resuming drilling at 1,969 feet with rotary rig; location has been made for No. 6 Garcia, Survey 58, located 1,990 feet to west line and 440 feet to north line.

Aviator or Bruni Tracts

George M. Ball's No. 4 Puig, Block 74, located 150 feet to south and west lines, is fishing for bailer. Killam-Maddox are rigging up the No. 1 Bruni, Block 65, Albercas grant, 1,170 feet to south line and 150 feet to west line. Crown Central Petroleum Co.'s No. 21 Bruni, Block 44, located 510 feet to east line and 770 feet to north line, is testing at 1,734 feet. Sun Oil Co. has made location for No. 13 Bruni, east one-half of Block 45, located 1,650 feet to north line and 200 feet to west line; No. 12 Bruni, same block, 1,250 feet to south line and 150 feet to west line, is retesting at 1,679 feet. J. L. Johnson and others have derrick up for No. 1 Anderson, Survey 2,363, Block 6, located 150 feet to south and west lines. Neal, Ramsland and others have derrick up for No. 1 Bruni, Block 41, located 150 feet to north and west lines.

Old Mirando Field

R. F. Duggan's No. 1 E. Garcia, Survey 608, Block 2, located 150 feet to south and east lines, is drilling at 1,200 feet. Crown Central Petroleum Corp.'s deep test, No. 10 Garcia, Survey 606, Block 56, located 150 feet to west line and 110 feet to north line, is drilling at 4,350 feet.

Carolina-Tex Field

Associated Oil Co.'s No. 3-B Webster, SE NW NW, Survey 684, is drilling at 1,850 feet. Hazlitt-Simmons' No. 1 de la Garza, Survey 335, Block 11, located 150 feet to north and west lines, is drilling at 2,960 feet. M. & N. Drilling Co.'s No. 1 Vela, Survey 1,012, Block 12, located 200 feet to northeast and southeast lines, is drilling at 2,800 feet. Daniel & Best's No. 1 Webster, NW NE NW, Survey 684, is shut down at 2,076 feet. T. P. Morgan's No. 1 de la Garza, Survey 335, Block 23, located 150 feet to south and east lines, is testing at 2,579 feet. Houston Oil Co. has made location for No. 1 "A" Barnsley, Survey 268, Block 14. Barnsley-Chicago Syndicate's No. 1 de la Garza, Survey 335, Block 19, is drilling at 1,200 feet.

Rockdale Field—Milam County

Laning & Noack's No. 2 Phillips-Perry, located 900 feet north of No. 1, is drilling at 800 feet. Chicago Oil & Land Co.'s No. 2 Gambill, offsetting No. 1, is drilling at 900 feet. Groneman Brothers are ready to spud in No. 1 Chandler, offsetting No. 1 Lorenz. Noack & Laning's No. 8 Baldridge, offsetting No. 7, across Cat Tail Creek, is building derrick. Carl Fogle has spudded in his No. 1 in Davilla section. Henry Davis has set casing in No. 2 Billy Smith, located 900 feet east of No. 1, which made salt water, and is to drill in at once. Baggett Brothers' No. 1 Mrs. Tom Fowler, a deep test, is shut down in the Eagle Ford, due to weather and lack of fuel. Cranfil & Reynolds are moving in rig for No. 1, northeast of the Davilla section. Clear Lake Oil Co.'s No. 1 Arnold has derrick up. Coffield & Hale's No. 2 Smith had tools stuck in hole, and in pulling them out, tore derrick, which has been rebuilt and well is still fishing. Rockdale Development Co.'s No. 2 Lorenz is averaging 25 bbls. daily. Smith Oil Co.'s No. 1 Loewenstein, south of Rockdale, which was thought would be abandoned when it was brought in last November, is making 2 to 3 bbls. daily. Noack & McCormick's No. 1 Marshall, extreme western edge of the field, which extends the field one-half mile, is standing 85 feet in fluid, of which one-half is oil and the rest water.

Kingsville Field—Kleberg County

Jake Jarmon-J. L. Minham have refiled on land in the submerged land of the state, with the State Department before test can be made. A. C. Erwin's No. 1 Kivlin (fee), Lot 7, Section 50, located 660 feet to east and south lines, is shut down at 650 feet. J. E. Walsh has derrick up and boilers on the ground for No. 1 Flato, Lot 29, King land, 1,280 feet to Humble's No. 2 State on the east. Humble Oil & Refining Co. has made location for No. 3 Kleberg, trustee, Lot 1, Section 40, located 150 feet to north and west lines, and is moving in machinery and derrick; No. 1 Kleberg, trustee, Lot 8, Section 40, located 150 feet to north and east lines, after blowing gas and sulphur water at 2,782 feet until it bridged, has been counted a failure and effort is being made to deepen it; No. 3 Flato Clarke, Lot 9, Section 40, located 150 feet to north and west lines, is drilling at 1,750 feet. Kepley Oil Corp.'s No. 1 Jonas Weil, Lot 12, Section 40, located NW cor. at 1,400 feet, came in making 8,000,000 feet of dry gas.

Refugio Gas Field—Refugio County

Houston Gulf Gas Co.'s No. 1 Fox at 2,018 feet came in making 45,000,000 feet of gas; No. 2 W. L. Rea, Survey 2, Block 5, located 660 feet to south and west lines, at 2,100 feet came in making 45,000,000 feet of gas; location has been made for No. 2 Fox, Survey 1, Block 5, at 660 feet to south and west lines; location has been made for No. 1 R. Lambert, Survey 2, Block 7, at 660 feet to south and east lines, and for No. 1 fee in Survey 2, Block 6, located 660 feet to south and east lines. Houston Oil Co. has made location for No. 9 Heard, Refugio Survey, 1,014 feet south of the No. 8. Houston Gulf Gas Co.'s No. 1 Breeding, Lot 2, Refugio town tract, is drilling. William F. Morgan is moving on for No. 1 Shelly, Block 144; No. 1 Rose Rogers has set casing on a gas sand.

Ina Field—Medina County

Arnett Oil Co.'s No. 5 Nixon, located 500 feet south of No. 4, is drilling at 980 feet.

Adams Gas Field—Medina County

Henderson & Holden are rigging up in Survey No. 13 in NW cor. of Block 14 for No. 7 Adams. Witherspoon Oil Co.'s No. 2 Franklin has set casing at 926 feet. Western Gas & Fuel Co. has derrick up for No. 5 Adams; No. 2 Adams, located 1,000 feet north of No. 1, has set casing at approximately 900 feet. Witherspoon Oil Co.'s No. 1 Redus in Survey 92, has topped Edwards lime and is drilling at 2,250 feet with the formation soft and dry.

Luling Field—Caldwell County

Magnolia Petroleum Co.'s No. 16 Rios 115-A at 2,206 feet came in making 75 bbls.; location has been made for No. 16 Alf Mercer, M. Caldwell Survey, 300 feet southeast of No. 15; No. 3 Clara Byrd is drilling; No. 22 Marines, H. Cottle Survey, 480 feet NE of No. 16, is drilling; No. 17 Rios is drilling. Atlantic O. & R. Co.'s No. 2 Rios is drilling. The two deep tests of the North and South are drilling, No. 1 Kelly below 6,502 feet and No. 1 Tiller at below 6,200 feet.

CANADIAN FIELDS

(Continued from Page 55)

ing. Dalhousie No. 6, LSD 10, Section 13-20-3w5, is reported drilling below 1,200 feet.

Stockmen Oils' No. 1, LSD 1, Section 27-20-3w5, has resumed drilling after running the 8¼-inch casing to the bottom of the hole at 3,580 feet. The test is believed to be close to the Madison lime. Regent Oils, LSD 16, Section 1-20-3w5, offsetting McLeod No. 2, has the derrick up and is installing a standard cable outfit, to spud in about March 10.

Calmont Oils, LSD 2, Section 1-20-3w5, is at 3,067 feet and drilling with 900 feet of open hole below the 12½-inch casing. The drill is in the lower Dakotas, with gas coming from the 2,435-foot level. George F. Tull and Ashworth Anderson, of Calgary, have been named directors of the company, the other officers being: President, A. G. Clarke; vice president and managing director, J. G. Dallas; secretary-treasurer, C. F. Hanson; director, Dr. L. A. Maxwell.

Small Shows of Gas

British Dominion Oil Corp., LSD 4, Section 5-20-2w5, is at 4,380 feet and drilling. Small shows of gas have been met at 4,150 feet, 4,190 feet and 4,350 feet. The 10½-inch casing has been run to 4,030 feet, and the company has 5,500 feet of 8¼-inch, and the hole is in good shape for deeper drilling.

Sentinel Oils, Section 8-20-2w5, has resumed work after being shut down for winter. The test, running single tour, is at 300 feet and has set 20-inch casing to shut off surface water. Okalta Oils, LSD 1, Section 1-20-3w5, has run 15½-inch casing to the bottom of the hole at 1,560 feet, and will drill open hole for the 12½-inch to 2,500 feet or lower.

Irish-Canadian Oils, Ltd., has been incorporated under Dominion charter with head office at Calgary and capitalization of 1,000,000 no-par shares. The company holds 1,280 acres in various potentional oil areas, and may drill a test in the Turner Valley Field.

In the Highwood section of the Sinclair structure, Imperial Oil, Ltd.'s Highwood No. 1, LSD 3, Section 36-18-3w5, is at 1,940 feet and drilling. It is unofficially reported that the test got a fair show of oil in the top of the Kootenay formation around 1,900 feet. The test is being carried deeper for commercial production.

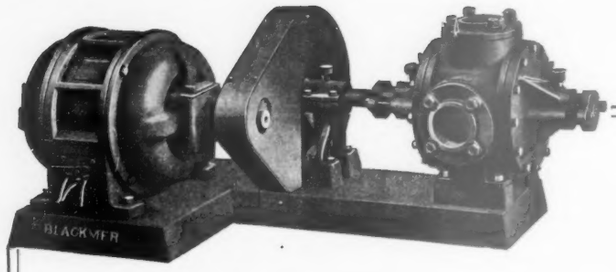
In the Bow Island Field, Imperial-Burdett's No. 1, Section 8-11-11w4, is at 3,455 feet and drilling. East of Coutts, Imperial-Erickson Coulee No. 1, LSD 13, Section 8-1-12w4, is drilling at 3,198 feet. In the Ribstone area, east of Edmonton, Imperial-Ribstone's No. 1, Section 5-45-1w4, is shut down at 2,252 feet, owing to freezing of the water supply.

Moose Mountain

In the Moose Mountain area, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, which resumed work recently at 674 feet, is running 12½-inch casing before drilling deeper. On the Morley Reserve, Gold Coin Oils is reported at 1,325 feet and drilling. It is expected that another 100 feet of drilling will reach the top of the Dakota formation. At this depth the dip in the structure has flattened out to less than 20 degrees.

On the Quarantine Reserve, close to Coutts, Urban Oils, Section 4-1-15w4, has resumed drilling in the limestone at 3,330 feet. On the Montana side, Pass Oils, Ltd., of Lethbridge, drilling in Section 5-34-1w5, has finished a duster. The well has been abandoned. No. 2 will be started either on the present lease or on new acreage. In No. 1 the bit failed to encounter even a trace of the Ellis sand, where production is found, the drill passing directly from the hard black caprock into the Madison limestone. The Madison was penetrated for 10 feet when water rose in the casing. It would seem that the Ellis pinches out before reaching the location, as no traces of oil were encountered in the black limerock. Montana-Major Oils, on the Valentine structure in central Montana, is reported shut down at 1,100 feet owing to cold weather, but will resume drilling in March. The log is stated to be similar to those of the Cat Creek Field.

In Saskatchewan, the Great Plains Oil & Gas Co. has material on the ground and camp ready for a test in Section 29-8-3w3, to spud in this spring. The location is close to Limerick, Saskatchewan, which is the head office of the company. The directors are A. P. Berg,



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A. B. Hill, E. Zimmerman, J. H. Dawson, A. A. Walberg, of Limerick; S. A. Smith, of Assiniboia; and M. J. McPherson, of Palmer, Saskatchewan. The company is also interested in Montana acreage.

Ontario Fields

In the Ontario fields, Vacuum Gas & Oil Co. of Toronto is reported to have finished No. 2 well on the Earl Smith farm, Camden Township, Kent County, north of Thamesville. The well is reported to have a fair flush production from the shallow lime. Ajax Oil & Gas Co. is reported to be starting a test on its acreage and may drill another shallow well a little later. Considerable territory in Camden and Zone Townships is reported under lease, the companies chiefly interested being the Vacuum Gas & Oil Co., Ajax Oil & Gas Co. and Eagle Oil & Gas Co. It is reported that some 240 bbls. from Vacuum No. 1 producer have been shipped to Imperial Oil, Ltd., at Sarnia.

ARTESIA, NEW MEXICO

(Continued from Page 49)

the Session Laws of 1925, relative to oil and gas leases. The proposed law was drafted by Charles Barker, attorney for the land office. In Section 1, of the proposed law it now reads as follows: "The term of all oil and gas leases shall be for five years and as long thereafter as oil or gas in paying quantities shall be produced from the leased lands." This provision would make it substantially the same as provided for in Producers form "88" leases on patented land.

Socorro County

Considerable interest is now being shown in Socorro County, where three wells are now drilling, one of which picked up a rainbow of oil several days ago. This well, the No. 1 Arnold, in Section 13-6s-1w, is drilling at close to 1,500 feet with the sand looked for around 1,750 feet.

The No. 1 Sealey well, in Section 13-3s-6e, is drilling at 550 feet with the No. 1 Perrin, in Section 30-5s-1e, shut down at 1,440 feet to install a rotary rig. The Ohio Oil Co. recently abandoned its No. 1 McDonald, in the NW, Section 32-4n-6w, at a depth of 1,997 feet in the granite.

Drilling—Eddy County

Clark & Grimm's No. 1 Daugherty, NE SW, Section 3-17-27, drilling at 200 feet; Compton's No. 3 Mann permit, SE, Section 3-18-27, drilling below 400 feet; Compton's No. 2 State, NW, Section 2-18-27, drilling below 200 feet; Empire Gas & Fuel Co.'s No. 2-A Russell, SW SE, Section 34-17-27, drilling at 300 feet; Empire Gas & Fuel Co.'s No. 3-A State, NE NW, Section 2-18-27, drilling at 90 feet; Empire Gas & Fuel Co.'s No. 1-B Russell, SE NE, Section 34-17-27, rigging up; Hammond Oil Co.'s No. 1, NW SE SW, Section 15-16-25, setting casing at 800 feet; Kelly's No. 1, Jim Berry Permit, NW NW, Section 27-17-27, drilling below 260 feet; Lackawanna Oil & Refining Co.'s No. 1, NE SE, Section 17-16-27, drilling below 1,100 feet; Lackawanna Oil & Refining Co.'s No. 7, C NW SE, Section 21-18-28, rigging up; Levers & Carper's No. 5, NW cor., Section 3-18-28, drilling; Marland Oil Co.'s No. 1, Section 11-20-30, rigging up; Navajo Oil Co.'s No. 1, NE NW, Section 32-17-27, shut down; Navajo Oil Co.'s No. 2, SW, Section 28-17-28, on production; Ohio Oil Co.'s No. 1 Marland, SW SW, Section 13-22-29, drilling below 1,850 feet; Ohio Oil Co.'s No. 8 Toommie Allen, SE, Section 28-18-28, drilling at 2,200 feet; Pueblo Oil Co.'s No. 1, C SE, Section 26-17-29, location; Pueblo Oil Co.'s No. 1, NW cor., Section 35-17-29, location; Prairie Oil & Gas Co.'s No. 1 Keel, SE SE, Section 10-17-31, drilling below 3,650 feet; W. A. Stone Oil Co.'s No. 1 Hnulik, SW NW NW, Section 25-17-26, erecting derrick; Skelly Oil Co.'s No. 1 Lynch, Section 22-17-31, capped; Bruce Sullivan's No. 1 SW cor., Section 1-18-31, shut down; Texas Production Co.'s No. 1, SE. Section 34-16-31, erecting derrick; Woolley & Jones' No. 1 Beeson, SE, Section 33-17-30, shut down; Woolley & Jones' No. 1 McIntyre, C SE, Section 21-17-30, drilling below 2,600 feet; Williams Petroleum Co.'s No. 5, in Section 17-18-28, on production.

Chaves County

Arena Oil Co.'s No. 1, SE, Section 24-13-30, building road to location; Buffalo Roswell's No. 1, Section 25-11-27, abandoned at 4,000 feet; Delmar Oil Co.'s No. 1, Section 22-11-26, drilling below 1,300 feet; Etz De Vito's No. 1, NW SE, Section 24-11-25, shut down; Gibson Oil Corp.'s No. 1 Forsyth, C NE, Section 11-8-23, shut down at 675 feet; Sparrow & Drake's No. 1 Fahrlander, Section 11-6-27, preparing to start operations; The Texas Company's No. 1 Dunken Dome, SW, Section 29-17-18, drilling below 3,300 feet.

Lea County

Cap Rock Oil & Gas Co.'s No. 1 Leonard & Levers, SE, Section 11-16-32, drilling below 850 feet; Covert's No. 1, NE NE, Section 15-21-33, drilling below 1,500 feet; Exploration Co.'s No. 1, NE, Section 25-19-35, drilling out broken underreamer; Henderson, Dexter & Blair's No. 1 Wyatt, SW SW, Section 34-17-33, shut down at 4,501 feet; Inglefield & Bridges' No. 1, Section 4-17-34, drilling below 4,450 feet; Maljamar Oil & Gas Corp.'s No. 1 Beardsley, SW SW, Section 15-17-32, erecting derrick; Grace Mitchell's No. 1, SW cor., Section 5-17-32, drilling below 4,050 feet; Ohio Oil Co.'s No. 1 William Mitchell, NE cor. SW, Section 18-17-32, drilling deeper below 4,070 feet; T. P. McDonald's No. 1, NE, Section 22-18-34, rigging up to resume drilling at 200 feet; Texas Production Co.'s No. 1 Jackson, SE cor., Section 4-20-34, building road to location; Texas Production Co.'s No. 1 Rhodes, NW, Section 22-26-27, road completed to location.

Quay County

Argo Oil Co.'s No. 1, Section 5-7-31, waiting for underreamer at 875 feet; Gibson Oil Corp.'s No. 1, NW, Section 25-8-32, underreaming with 15½-inch casing; Ohio Oil Co.'s No. 1, Section 24-7n-29e, fishing at 1,150 feet.

DeBaca County

McAdoo Petroleum Corp.'s No. 1 State, Section 16-1-27, shut down for 8¼-inch casing at 2,400 feet.

Curry County

Frio Oil Co.'s No. 2 Saunders, Section 11-5n-35e, shut down at 450 feet; oil show at 350 feet; Steinberger's No. 1, C NE, Section 21-3n-35e, moving material to location.

FARMINGTON DISTRICT DRILLING OPERATIONS

By Special Correspondent

FARMINGTON, N. Mex., Feb. 19.—A contract has been closed for the drilling of the W. J. Emery permit in the Blanco district. The location is to be near the C SW NW, Section 24-30-9, this being close to the mouth of Pump Canyon and 1 mile north of the San Juan River. The contract calls for a 15-inch hole, with the Farmington and Mesa Verde sands the objective.

The Continental, Santa Fe Oil Co.'s No. 17, on the Rattlesnake structure in Section 2-29-19, which is being put down as a deep test, is trying to pull the 8-inch casing. In No. 23, in Section 12-29-19, a depth of 55 feet has been reached. The Continental company, operating on the Table Mesa structure, in Section 3-27-17, is drilling at a depth of 485 feet.

A. M. Edwards, drilling on the R. M. Jackson tract, Section 22-29-11, in the Bloomfield district, is on top of a sand at 645 feet and expects to drill in this well during the coming week.

The Ohio Oil Co., operating on the Red Mesa structure, in Section 11-32-12, set 6-inch casing at a depth of 3,410 feet and has resumed drilling. The latest reported depth is 3,460 feet.

The Miley Oil Co., on the Red Mesa structure, Section 32-33-12, has been unable to recover a lost string of tools. The casing was pulled and after several days' fishing the rig has been shut down.

The Portage Oil & Gas Syndicate, operating on the Glade structure, Section 34-30-13, 6 miles northeast of Farming-

ton, has successfully shut off the water with 6-inch casing at 1,675 feet. Some delay in completion has been caused by the necessity of drilling out a broken lug.

The San Juan Petroleum Corp., operating on the Palmer tract, in Section 17-29-13, has a showing of oil and gas at 950 feet. The well has been shut down at approximately 1,000 feet, awaiting casing with which to shut off salt water encountered.

The strike of the Midwest Refining Co., on the Hospah structure, in the Seven Lakes district, Section 1-17-9, is reported good for 300 bbls.

A deal has been closed with Thomas R. Williams of Los Angeles, Calif., representing a California syndicate, for a large block of acreage, in the Blanco district, on which it is the intention to drill 6 wells during the year.

MEXICAN FIELDS

(Continued from Page 42)

shut down for orders at 2,771 feet; its No. 85 is running 8-inch at 1,900 feet in the stinking blue shale; No. 88 is running 8-inch in gray lime at 2,040 feet; No. 91 is shut down at 84 in blue shale; No. 93 is the same at 390 feet, in gray shale. Agwi companies' No. 33 Laguna de Tamiahua is drilling in shale at 278 feet. Mexican Sinclair Petroleum Co.'s No. 6-A San Isidro cemented 8-inch in hard lime at 2,580 feet. Mexican Eagle Oil Co.'s No. 45 Cerro Veijo is in shale at 1,931 feet; No. 52 is 1,970 feet in shale; its No. 15 San Diego is in shale at 2,120 feet; its No. 30, Lot 226, Amatlan, is in shells at 2,090 feet; its No. 43 Furbero is changing to standard at 2,225 feet in shale; and No. 5 Chiconcillo is in sandstone at 440 feet. Mexican Gulf Oil Co.'s No. 57 Toteco has shut down in a hard gray lime at 482 feet.

At Ebano

In the Ebano sector of the northern fields, operations by Mexican Petroleum Co. follow: No. 2 Ebano is shut down at 60 feet; No. 20 has shut down for orders in gray and black lime at 2,750 feet; its No. 65 Midway cemented 8-inch in gray lime at 1,215 feet; No. 24 Mendez is in black and white lime at 2,010 feet; No. 33 is in white lime at 2,160 feet, with 1,000 feet of oil in the hole; No. 105 La Dicha has shut down in gray lime at 1,235 feet; No. 140 La Dicha is drilling by a bit at 1,835 feet; No. 118 E. Dicha cemented 10-inch in gray lime at 1,259 feet and shut down; No. 138 Conteca has shut down at 225 feet gray shale; No. 140 Conteca is fishing a bit in gray lime at 1,660 feet; No. 29 Pedro has shut down in blue lime at 1,250 feet; No. 1 Camino is in gray lime at 2,150 feet; and its No. 6 Margaritas is drilling in gray lime at 2,260 feet. National Lines' No. 57 Conteca, on the right of way, is in brown lime at 2,050 feet; and its No. 64 is in clay at 125 feet.

Northern Miscellany

Miscellaneous tests in the northern fields follow: In Los Esteros, American International Fuel Co.'s No. 49 is in gray lime at 2,859 feet; and its No. 57 has been shut down at 1,212 feet. La Corona Petroleum Co.'s No. 22 Topila is in lime at 2,250 feet; its No. 23 is being observed at 2,870 feet, Tamasopa, where it is a big gasser; its No. 1, Lot 3, Tamismolon is in shale at 2,970 feet. Imperial Oil Co.'s No. 7, Lot 78, Quebrache, is in gray shale at 2,800 feet. National Oil Co.'s No. 9, Lot 83, Quebrache, is in gray shale at 2,845 feet. Mexican Gulf Oil Co.'s No. 57 Chapacao is in gray lime at 2,145 feet; and its No. 72 El Barco has been shut down at 1,050 feet in gray lime.

In the Limon district, Cia. Pet. Franco Espanola's (Marland) No. 75 Limon is in gray shale at 2,760 feet; No. 78 is running 8-inch at 1,480 feet, gray lime; No. 83 is in gray lime at 2,050 feet; No. 88 is in lime at 1,645 feet; No. 89 is in gray shale at 970 feet, and four more derricks are up ready to rig.

Secretary Kellogg's Statement

In response to inquiry from the United States Senate as to the names of American individuals and American corporations owning or claiming oil lands or oil concessions in Mexico alleged to have been acquired prior to May 1, 1917, Secretary of State Kellogg states, according to the State Department's information, no oil concession was granted before the date mentioned by the Government of Mexico to any American corporation or individual. The department is informed that American citizens owning oil lands or oil leases before that date acquired them by arrangements with the previous owners thereof, and made under the laws then existing. Secretary Kellogg's reply continues:

"All American individuals and corporations who purchased lands in Mexico before May 1, 1927, acquired, under the laws then in force, at least after November 22, 1884, the right to extract petroleum therefrom.

"Ever since the question at issue arose during the administration of President Wilson, the Government of the United States has consistently maintained and continues to maintain that there should be no question as to the security of valid and vested rights which have been acquired by American citizens in accordance with Mexican laws as they existed at the time of their acquisition.

"It is impossible for the Department of State to furnish the Senate with a complete list of the land acquisitions in Mexico before May 1, 1917, by American individuals and American corporations, as the names of all such persons and corporations are not known to the department.

Americans Known to Hold Rights

"However, I give below the names of American individuals and American corporations who, according to the department's information, own or claim lands in Mexico alleged to have been acquired prior to May 1, 1917, and which have been found to contain or are supposed to contain subsoil deposits of petroleum:

American International Fuel & Petroleum Co., M. C. Anderson and others, Atlantic Lobos Oil Co., estate of Dr. B. C. Axtell, Ernest Balch, A. W. Beckman, Cortez-Aguada Petroleum Co., Cortez Oil Corp., W. H. Dalton, D. L. Doub, East Coast Oil Co., Jasper Exendine, G. L. Hall, J. L. Hall, G. S. Harris, L. O. Hawkins, Huasteca Petroleum Co., P. J. Hodgins, Johnson Sand & Fiber Co.; Ed T. Kearney, Mrs. Lena Kettering, Lot Seventeen Oil Co., Mexican Coal & Coke Co., Mexican Crude Rubber Co., Mexican Gulf Oil Co., Mexican Petroleum Co. of California, Mexican Plantation Co., Mexican Sinclair Petroleum Corp., Mexican Land Securities Co., New England Fuel Oil Co., Oil Fields of Mexico, Panuco Buston Oil Co., Penn Mex Fuel Co., J. M. Postelle, Charles Rathbone, J. Beach Rhoades, W. H. Sutherland, Tamiahua Petroleum Co., Tamesi Petroleum & Asphalt Co., Tampico Oil & Refining Co., Texas Petrolene & Asphalt Co., A. N. Tillman, Tuxpam Petroleum Co., Melville K. Weill, Burton W. Wilson and associates, M. P. Wright, Mrs. Carrie Yates.

"According to the department's information, the following individuals or corporations, foreign to Mexico, have applied for confirmatory concessions under the provisions of the so-called petroleum law of Mexico, regulatory of Article 27 of the Mexican Constitution of 1917: The Penn Mex Fuel Co., the Texas Petrolene & Asphalt Co., the East Coast Oil Co., and the New England Fuel Oil Co.

"I understand that the first two mentioned companies are not actively producing petroleum in Mexico and that the last two own no fee properties in that country. The department has not been informed that a concession has actually been granted to any of these four companies, and in this relation may point out that Article 27 of the Mexican Constitution of 1917 seems to prohibit the granting of such a concession to a foreign corporation, and that this interpretation of the constitution finds support in the opinion of the Attorney General of Mexico, published in the Diaro Official December 8, 1917, wherein he held that in view of the constitutional provisions referred to, alien corporations shall in no event acquire lands, waters and their appurtenances in Mexico.

"According to the department's infor-

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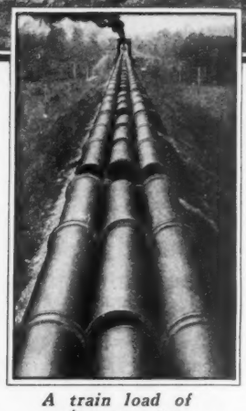

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mation, the American persons or corporations listed, with the exception of four corporations, have refused or have failed to accept the provisions of the so-called petroleum law of Mexico.

"The department is further informed that the following American persons or corporations (or individuals or corporations foreign to Mexico) holding their titles in the name of Mexican companies, have refused to accept the new petroleum law:

"Atlantic Refining Co. Subsidiaries: La Atlantica Compania Mexicana Productora y Refinadora de Petroleo, S. A. D. W. Johnson & Cia., Successores.

"Atlantic Gulf Oil Corp. Subsidiary: Cia. Petrolero del Agwi.

"Humble Oil & Refining Co. Subsidiary: Cia. Petrolera Tamaulipas, S. A.

"Island Oil & Transport Corp. Subsidiary: Cia. Petrolera Capuchinas, S. A.

"Standard Oil Co. of California: Subsidiary: Richmond Petroleum Co. of Mexico, S. A.

"Standard Oil Co. of New Jersey. Subsidiary: Cia. Transcontinental de Petroleo, S. A.

"Leopold Newborg, W. L. Hernstadt, Malcolm C. Anderson. Mexican company: Cia. Petrolera Los Chijoles, S. A.

"Anglo-Mexican Petroleum Co., Ltd. Subsidiary: Cia. Mexicana de Petroleo 'El Aguila,' S. A. (British Eagle.)

"Royal Dutch-Shell, Subsidiary: Cia. Mexicana Holandesa, 'La Corona,' S. A. (Dutch Corona.)

"The department understands that the American and Mexican corporations herein above listed as having refused or failed to accept the provisions of the petroleum law of Mexico control about 90 per cent of the actively petroleum producing lands of Mexico acquired before the Mexican Constitution of 1917, and that they produce about 70 per cent of the oil produced in Mexico."

LA.-ARK. WILDCATS

(Continued from Page 46)

sas Timber Co., Section 33-15-11, is drilling lime at 4,038 feet.

Lafayette County

A derrick is up for T. R. Brown's No. 1 Thomas, 100 feet north and east SW cor. NW NE, Section 15-16-23.

Bienville Parish

Kimbrough and associates' No. 1 Cargle, Section 27-15-8, is being reamed to the bottom at 1,550 feet.

Bossier Parish

Eight-inch pipe was not set at 1,200 feet at Bahan and associates' No. 1 Mays, Section 27-23-12, is drilling gummy lime at 2,244 feet. Twelve-inch pipe was set at 448 feet and Bethany Oil & Gas Co.'s No. 1 Dodson, Section 16-23-12, is drilling at 660 feet. Clark and Norton's No. 1 Ford, Section 32-23-13, is drilling at 400 feet. Doern and associates' No. 1 Thomas, Section 10-22-11, is drilling at 2,550 feet. Ten-inch pipe was set at 44 feet at Harrell Drilling Co.'s No. 1 Atkinson, Section 2-18-12. Louisiana Oil Refining Corp.'s No. 1 Blanton, Section 23-23-12, is a derrick. Tubbs and associates' No. 1 Jacobs, Section 26-20-13, is shut down at 1,520 feet. Woodley and Collins' No. 2 L. & A., Section 14-23-12, cored shale streaked with oil sand at 2,703 feet.

Caldwell Parish

Location has been staked for Humble Oil & Refining Co.'s No. 4-A Louisiana Central, 990 feet west and 330 feet north C, Section 12-11-2e.

Claiborne Parish

Root Refining Co.'s No. 1 Cheatham, Section 19-22-6, was dry and abandoned at 3,314 feet. Magnolia Petroleum Co.'s No. 1 Lee, Section 16-22-8, topped the Nacatoch sand at 2,080 feet and is drilling sandy lime at 2,090 feet. Mitchell and Janson's No. 1 Wilburn, Section 23-19-7, is drilling at 1,700 feet. Standard Oil Co.'s No. 1 Mitchell, Section 29-21-7, is being washed out and 4½-inch pipe is to be set at 2,062 feet.

DeSoto Parish

In the Dolet Hills region, A. H. Tarver's No. 2-B Matthews, Section 32-12-11, was completed at 2,679 feet making 5,000,000 feet of gas and spraying oil. Dixie Oil Co.'s No. 1 Jenkins, Section 9-12-11, is drilling lime at 5,042 feet. Helm and Jarman's No. 1 Joyner, Section 28-11-12, is shut down for orders at 2,998 feet. Eight-inch casing was cemented at 2,589 feet at Magnolia Petroleum Co.'s No. 1 Mason, Section 28-12-11. The liner is being set to test at 2,790 feet at Snapp and associates' No. 1 Lanier Oil & Lumber Co., Section 7-11-11.

Franklin Parish

Exploration Co.'s No. 1 Moore, Section 12-11-6e, is drilling black lime at 2,111 feet.

Grant Parish

E. H. Billeaud's No. 1 Ball, Section 19-7-1e, is shut down at 2,400 feet. Six-inch casing was cemented at 1,592 feet at Gulf Refining Co.'s No. 2-A L. C. Swope, Section 17-9-1e, total depth 1,598 feet. Gulf company's No. 3-A L. C. Swope, Section 8-9-1e, blew in at 500 feet making 3,000,000 feet of dry gas. The well blew 30 minutes and bridged. It is to be drilled deeper.

Jackson Parish

Louisiana Petroleum Co.'s No. 3 Davis, Section 22-16-4w, is shut down at 2,301 feet.

Madison Parish

Bannion and associates' No. 1 Yeager, Section 51-16-14, shut down for months at 1,792 feet, was abandoned at that depth last week.

Natchitoches Parish

Humble Oil & Refining Co.'s No. 8-A L. L. L. L. Co., Section 26-6n-8w, was dry and abandoned at 1,917 feet. Lawson and Pharris' No. 1 Clark and Morse Lumber Co., Section 23-5-6w, is being washed to the bottom at 2,528 feet. Ohio Oil Co.'s No. 1 L. & A., Section 23-13-6w, is drilling sand and shale at 2,560 feet. Weaver Brothers' No. 1 Frost Lumber Co., Section 25-7-7w, is drilling at 1,100 feet.

Red River Parish

S. M. Cagle's No. 1 Posey, Section 23-13-10, set 8-inch at 64 feet and is shut down at 183 feet. Magnolia Petroleum Co.'s No. 14 Foursome, Section 7-12-10, is waiting for a standard rig at 2,820 feet. Phillips Petroleum Co.'s No. 1 Long-Bell Lumber Co., Section 16-12-8, is a derrick. The Texas Company's No. 35 Brinkenhoff, Section 30-13-10, is drilling shale at 2,400 feet.

Richland Parish

Gulf Refining Co.'s No. 1 Mansfield, Section 30-17-6e, is drilling hard gray sand at 1,536 feet. Gulf company's No. 1 Wayne, Section 36-17-5e, is drilling shale streaked with sand at 1,400 feet. Eight-inch casing was set at 901 feet at S. D. Hunter's No. 1 McCoy, Section 29-16-6e. Hunter's No. 1 Siebert, Section 1-16-5e, tested 100,000 feet of gas at 2,381 feet and arrangements are being made to pull the liner and drill deeper. Louisiana Petroleum Co.'s No. 1 Hicks, Section 22-17-6e, is shut down at 2,359 feet. Palmer Corp.'s No. 1 Colvin, Section 33-17-6e, gauged 4,600,000 feet of gas at 2,385 feet. From 2,385-87 feet red gumbo was cored and arrangements are being made to drill deeper. Ruston Drilling Co.'s No. 1 O'Neal, Section 35-17-6e, is drilling shale and boulders at 2,190 feet. Standard Drilling Co.'s No. 1 Delta Hardwood Co., 150 feet south and west NE cor., Section 22-16-7e, is a rig. Stovall Drilling Co.'s No. 1 Mitchell, 660 feet north and east C, Section 20-17-6e, is a rig. Twelve-inch casing was set at 170 feet and Texas-Louisiana Carbon Co.'s No. 1 Broughton, Section 1-16-6e, is drilling ahead at 220 feet.

Sabine Parish

Arkansas Fuel Oil Co.'s No. 2 Logan, Section 28-10-12, is being rigged. Same company's No. 3 Logan, Section 33-10-12, is a rig. L. M. Emlet's No. 7 H. L. Bowman, Section 14-7-14, is coring chalk at 2,587 feet. Magnolia Petroleum Co.'s No. 1 L. L. L. L. Co., Section 11-6-11, is being reamed to the bottom at 2,881 feet. Lewis & Clark Petroleum Co.'s No. 1 Wyatt Lumber Co., Section 23-5-12, is being reamed to the bottom at 3,140 feet. A derrick is up for Ohio Oil Co.'s No. 1 Cook Land Co., 588 feet south and 2,411 feet west NE cor., Section 34-10-12, in the Pleasant Hill district.

Humble Oil & Refining Co.'s No. 18-A L. & A., Section 19-10-1w, was dry

and abandoned at 1,505 feet. Greer and Gault's No. 1 Bodcaw, Section 9-11-4w, is shut down at 2,280 feet. J. C. Long's No. 1 Milam, Section 28-13-3w, is shut down at 1,450 feet. Ohio Oil Co.'s No. 2 Edenborn, Section 4-12-1w, is drilling lime rock at 3,991 feet. Standard Oil Co.'s No. 1 Tremont Lumber Co., Section 1-12-2w, is drilling rock at 2,460 feet.

GULF COAST

(Continued from Page 52)

Batson, is drilling around 3,365 feet. No. 170 Wing, in the old section, is at 1100 feet. The Texas Company's No. 3 La Jarza, on the east side, is at 3,870 feet. The Kirby-Capitol Oil Co.'s No. 7 Hodges, on the northeast side, is shut down at 190 feet. The East Batson Oil Co.'s No. 1 Crawford, in the old pool, is drilling at 1,065 feet with No. 20 Brooks idle at 1,050 feet.

Goose Creek

On the Smith tract, the Humble Oil & Refining Co.'s No. 56 will be drilled deeper. No. 70 is at 5,050 feet. No. 17 Galliard Peninsula is at 4,235 feet and No. 31 is below 2,900 feet, with No. 32 at 4,670 feet. The Gulf Production Co.'s No. 32 Beaumont will be deepened. No. 12 State Land is deepening at 2,865 feet and No. 13 Chapman-Bryan is drilling around 4,600 feet. The Lake Shore Oil Co.'s No. 3 Duke is shut down at 2,760 feet. The M. & B. Oil Co.'s No. 3 Scorrgea, on the northwest side, will be drilled deeper.

Sour Lake

In the deep sand section at Sour Lake, the Humphreys Corp.'s No. 5-B Bashara, No. 1-G Bashara and No. 1 Gordon are standing idle at 4,000 feet, 4,025 feet and 3,800 feet respectively. The Gulf Production Co.'s No. 2 Thompson is drilling at 1,900 feet. No. 4 Ebberts is at 3,670 feet and No. 5 Jackson around 3,865 feet. The Sun Oil Co.'s No. 1 Carpenter is drilling at 4,225 feet.

Hull Pool

The Gulf Production Co.'s No. 83 Phoenix, on the southeast flank at Hull, is rigging. No. 15 is deepening at 3,250 feet. Locations have been made for Nos. 84 and 85 Phoenix. The Texas Company's No. 1 Merchant is drilling at 2,500 feet; No. 2 Hannah is at 3,225 feet. The Republic Production Co.'s No. 33 Dolbear will be deepened as will the Humble Oil & Refining Co.'s No. 1 Merchant.

West Columbia

The Texas Company's No. 51 Hogg is drilling at 2,780 feet, and the Gulf Production Co.'s No. 9 Ayres at 2,900 feet.

Blue Ridge

The Navarro Oil Co.'s No. 2-A Robinson, on the northwest flank, is drilling at 3,500 feet. James Abercrombie & Co.'s No. 1 Robinson is at 1,455 feet. No. 2 Robinson is around 1,435 feet. The Gulf Production Co.'s No. 4 Invincible, on the southwest side, is at 3,320 feet. On the south side, the Humphreys Corp.'s No. 2 West-Schenck is at 3,500 feet. A derrick is up for James Abercrombie & Co.'s No. 3 West-Schenck. Gulf Production Co.'s No. 8 West-Schenck is drilling around 3,800 feet and No. 9 is rigging. No. 9-B Blakely is at 545 feet.

Orange Field

The Gulf Production Co.'s No. 3 Granger, at Orange, is sidetracking at 4,400 feet. Brownie Babbittee Oil Co.'s No. 1 McLean is deepening. The Tillery Oil Co.'s No. 2 State Land is drilling at 3,700 feet.

Coastal Louisiana

The Louisiana & Colorado Oil Co.'s No. 3 Johnson, in the Vinton Pool, was abandoned at 2,010 feet in salt water.

In the Jennings Pool, The Texas Company's No. 1 Bayne is drilling around 3,700 feet. Its No. 103 Latrielle will be deepened. C. W. Cline & Son's No. 5 Conklin is drilling at 2,000 feet. The Kenton Oil Co.'s No. 2 Pierce is idle at 310 feet. A location has been made for the Balyard Oil Co.'s No. 4 S. F. S.

In the Edgerly Pool, C. M. Crotty's No. 12 Lilliard will be drilled deeper. The Rex Petroleum Co. has made a location for No. 5 Hunter.

In the Lockport Pool, in Calcasieu Parish, where the Vacuum and Gulf Refining companies are operating jointly, No. 8 Miller will be deepened from 4,300 feet. No. 13 Miller is drilling at 3,865 feet and No. 14 is rigging. No. 4 Farquhar is drilling at 3,765 feet. No. 5 is a location. No. 2 Friedberg & Wolf is drilling around 4,000 feet. No. 2 Bordages is deepening from 4,900 feet. No. 3 Bordages will be deepened. No. 4 is drilling below 3,965 feet.

In the shallow sand section on the dome of the Boling Pool, Weed & Gayle's No. 5 Banker is drilling. No. 4 Keller and No. 6 Lavelock are starting. On the northeast side, the Sun Oil Co.'s No. 2 Farmer is drilling around 2,520 feet. The Texas Company's No. 2 Farmer is rigging. Same company's No. 3 Felder, on the southwest, is around 2,970 feet. The Gulf Production Co.'s No. 2 Chase, on the south side, is starting.

Wildcats in Coastal Texas

The Humble Oil & Refining Co. and Valley Oil Co., joint holders of a block of 32,000 acres in the Ives Creek section of Austin County, east of Bellville, are starting three deep tests, replacing the gasoline rigs with steam-driven rotaries. The equipment is being transferred from the coastal pools. The section is also known as Raccoon Bend. These interests are cutting the liner in No. 1 Austin College lands to drill deeper from 1,038 feet, where it showed gas and then water when the packer failed to hold.

The Hockley Dome, in the northwestern part of Harris County, is again in the limelight. The Humble and Rycade companies will start operations there within 60 days on the Warren ranch. Royalty buyers are dickering with land owners, paying from $100 to $150 per acre for one-sixteenth of the royalties. P. S. Griffith's No. 2 fee, North Houston, is idle at 2,425 feet. Brain and others, north of Spring, is around 1,135 feet.

Sabine County: Chester Oil Co.'s No. 1 Pratt, starting.

Refugio County: W. F. Morgan's No. 1 Rogers is drilling.

Brazoria County, Clemen Dome: Roxana Petroleum Corp.'s No. 4 Clemens, drilling around 3,300 feet. No. 2-A Pabst, drilling below 3,841 feet. Allen Dome: Roxana Petroleum Corp.'s No. 1 Reese, drilling at 355 feet. No. 3 Allen, setting casing. Stratton Ridge: Gulf Production Co.'s No. 1, on south side, around 4,500 feet. Associated Oil Co.'s No. 1 Seaburn, east side, rigging. Danbury: The Texas Company's No. 1 Sweeney, rigging.

Fort Bend County, Long Point Dome: Gulf Production Co.'s No. 3 Beard, idle. No. 14 Wheat, rigging.

Liberty County, Kyle Dome: Union Sulphur Co.'s No. 4 Kyle, Moss Bluff, is rigging. Barlow and others' have a derrick up for No. 1, near Excelsior. A test at Cleveland is around 3,350 feet.

Matagorda County, Hawkins Dome: Gulf Production Co.'s No. 8 Craig, drilling below 3,715 feet. Same company's No. 2 Sanborn is around 3,635 feet and No. 2 Parkinson is below 1,100 feet. The Shepherd Mott Oil Co.'s No. 2 Murphy is idle. In the Markham Pool, the Deering-Houston Gulf Gas Co.'s joint No. 1 Gray is deepening at 3,290 feet, showing oil.

Jefferson County, Fannette Dome: Gulf Production Co.'s No. 3 Bordages is rigging. Edmund and others' No. 1, located 2 miles northwest of Port Arthur, has a derrick up. Miller Drilling Co.'s No. 1 Edwards, near Nederland, is rigging. Deep Test Oil Co.'s No. 1 Roberts, 4 miles northeast of Beaumont, is fishing for the drill stem in the hole around 1,450 feet.

Coastal Louisiana

Cameron Parish: At Hackberry Island Dome, the Yount Lee Oil Co.'s No. 5 School land is drilling around 4,000 feet. The Union Sulphur Co.'s No. 2 Ellender there is below 1,725 feet. It is also drilling No. 2 Gulf land. Locations have been made for No. 1 Bell and No. 1 Vincent. The Border Research Co. is drilling No. 1 in Mallard Bay, and rigging No. 1 in Sabine Lake. The Pure Oil Co. is rigging No. 3 Sweet Lake in

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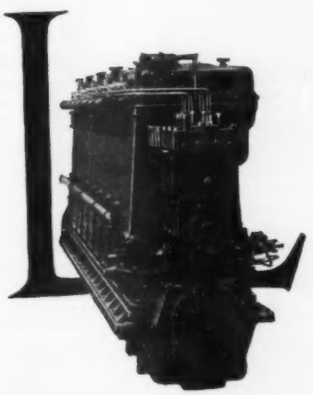

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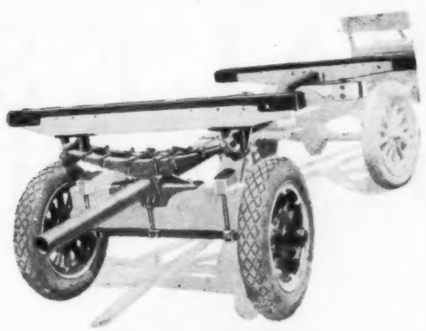

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the southeastern part of the parish. Union Sulphur Co.'s No. 1 Little is a location.

Calcasieu Parish: The Border Research Co.'s No. 1, in Calcasieu Lake, is drilling around 3,600 feet. Poole and others' No. 1 Castile is idle at 2,615 feet. Off the Stark New Dome, where production has been found, the Standard Oil Co. of Louisiana's No. 4 Industrial Lumber Co. is shut down at 1,600 feet. No. 5 was abandoned in salt at 2,415 feet. The Gulf Production Co.'s well there on the Lutcher-Moore company land, is shut in waiting on storage. Two more locations have been made by the Gulf company. The Gulf Pipe Line Co. is laying a line to connect with its main line to Port Arthur at Toomey. The Kansas City Southern Railroad is laying a spur track to a point near the Stark Pool. Union Sulphur Co.'s No. 120 fee, drilling at 720 feet in the old sulphur district.

Iberia Parish: In the Eagle Point semi-pool, the Gulf Production Co.'s No. 1 State land is drilling around 3,185 feet. No. 1 Eagle is below 715 feet. The Union Sulphur Co.'s No. 1 Schwing is at 1,140 feet shut down. A derrick is up for No. 1-A Shaw. The Border Research Co. has a derrick for No. 1, in Vermillion Bay. The Calcasieu Oil Co.'s No. 1, near New Iberia, is below 3,700 feet.

Jeff Davis Parish: The Estropal Oil Co.'s No. 2 Le Deux is around 1,990 feet. Emerson and associates' No. 1 Pierrie Comier is below 4,170 feet. Elton Oil Co.'s No. 1 Bullard, idle at 2,065 feet, as is F. I. Getty's No. 1 Lacosine at 2,580 feet.

Assumption Parish: Union Sulphur Co.'s No. 1 Bank of Paincourt, Napoleonville, drilling around 815 feet.

Evangeline Parish: The Texas Company's No. 2 Guillory, Pine Prairie, is fishing for drill pipe.

St. Mary Parish: Border Research Co.'s No. 1 Grand Lake, drilling around 3,400 feet. A derrick is up for No. 1 West Cote Blanche. Pharr & Reed's No. 1 Avoca Island, shut down.

East Feliciana Parish: Border Research Co.'s No. 1 McKeeley is shut down.

St. Landry Parish: Terre Bonne Gas Co.'s No. 1 Whitman, shut down at 2,650 feet. Bristol Oil & Gas Co.'s No. 1 Breaux and the Farmers Oil & Mineral Co.'s No. 1 Fontent are both idle at 3,015 feet and 3,450 feet respectively.

St. Martin Parish: Ohio Oil Co.'s No. 3 Martin and the Rycade Petroleum Co.'s No. 1 Atchafalaya are both still reported shut down. High water caused a suspension of operations.

The Gulf Refining Co. has started No. 67 Gray and the Vinton Petroleum Co.. No. 13 Gray-Rescue, in the Vinton Pool, in Calcasieu Parish.

OKLAHOMA FIELDS

(Continued from Page 44)

rotary for No. 2 Polson, SW cor. NW SE, Section 27-3n-5w.

Jefferson County

Sigler and others' No. 1 Seay, SE cor. SW SE, Section 34-6s-5w, has been abandoned at 1,632 feet. L. C. Hivick has abandoned the location for No. 1 Hayes, NE cor. Section 23-7s-7w. J. R. McCoy and others' No. 1 Smith, NE cor. SE NW, Section 14-7s-6w, has been abandoned without making hole. Woodruff Brothers' No. 1 Oscar Seay, NW cor. NE, Section 5-7s-5w, is abandoned at 1,435 feet.

Carter County

Amerada Petroleum Corp.'s No 11 Criner, SW cor. NW NE NW, Section 20-5s-1e, is drilling at 100 feet. Rig is being built for Wirt Franklin and the Prairie Oil & Gas Co.'s No. 13 Pruitt, NE cor. NW NE NW, Section 3-2s-3w. Magnolia Petroleum Co. has the rig up for No. 1 E. C. Lewis, NW cor. NE, Section 23-1s-3w. Max Westheimer is building the rig for No. 3 Dixon, SE cor. SW NW, Section 18-1s-3w. Magnolia Petroleum Co.'s No. 4 G. Cox, NE cor. SE NE, Section 16-2s-2w, was completed for 15,000,000 feet of gas at 1,016 feet. Carter Oil Co.'s No. 3 Pierce, NW cor. SW SW, Section 8-2s-2w, reached a total depth of 2,964 feet and is producing 35 bbls. from a broken sand at 2,413-45 feet. Roxana Petroleum Corp.'s No. 5 Caughman, SE cor. Section 7-2s-2w, is making 115 bbls. from broken sand at 2,144-2,520 feet and total depth is 2,710 feet.

Stephens County

Magnolia Petroleum Co.'s No. 10 Dora Russell, NE cor. SE SE, Section 25-1s-9w, is making 1,000,000 feet of gas in sand at 2,280-88 feet. No. 11 Dora Russell, NW cor. SE SE SE, Section 25-1s-9w, is flowing 150 bbls. from sand at 2,159-71 feet. No. 4 Worrell, SW cor. NW, Section 19-1s-8w, has been abandoned at 2,275 feet. Scott & Arington's No. 1 Burke, SW cor. NE, Section 34-1s-8w, is making 1,000,000 feet of gas from sand at 1,404-12 feet. Skelly Oil Co. abandoned No. 28 Shelby, SE cor. Section 26-1s-5w. The depth is 4,150 feet. No. 1 Krebs, NE cor. SE SE, Section 13-1s-4w, is pumping 32 bbls. from a broken sand at 2,504-2,938 feet. Harper and others abandoned No. 1 Enloe, NE cor. SE SE, Section 21-2s-7w. The depth is 1,102 feet. Continental Development Co. is rigging up a rotary to drill No. 1 Ball, NE cor. NW, Section 1-1n-9w. Carter Oil Co. is building the rig for No. 2 Charleston, SW cor. NW, Section 32-1n-5w. W. H. Gant's No. 5 School Land, NW cor. NE NE, Section 36-1s-9w, is cementing surface pipe. Magnolia Petroleum Co. is building the rig for No. 1 G. Martin, SE cor. SW NE, Section 13-1s-4w. F. W. Merrick is rigging up the rotary for No. 1 Underwood, SE cor. NW SE, Section 13-1s-4w. Skelly Oil Co. is building the rig for No. 3 Krebs, SE cor. NE SE, Section 13-1s-4w.

Marshall County

Kennedy Drilling Co.'s No. 1 Sacra, SW cor. NE SW, Section 17-5s-5e, is dry at 1,810 feet. The well had a showing of oil at 1,286-1,300 feet.

KANSAS FIELDS

(Continued from Page 44)

4,015 feet and plugged back to 2,732 feet where it is making 10 bbls.

Edwards County

Edwards County Petroleum Co.'s No. 1 Nobersall, NE cor. SE SE, Section 7-23-19, is dry at 4,653 feet.

Elk County

Kansas Fuel Oil Co. has made location for No. 1 Keck, NW cor. NE SW, Section 17-29-10. Kismet Oil Co. has made location for No. 1 Reid, SW cor. SE NE, Section 8-29-11. Kansas Central Oil Co.'s No. 3 Stiles, C NW NE, Section 21-31-9, is dry at 1,504 feet. Pure Oil Co.'s No. 15 Chaffine, SW cor. NW SE, Section 14-31-10, is producing 1,000 bbls. from sand at 1,628-44 feet. No. 16 Chaffine, SW cor. NW NW SE, Section 14-31-10, is making 325 bbls. from sand at 1,627-48 feet. Union Gas Corp.'s No. 7 Leffingwell, SE cor. NE NE SW, Section 14-31-10, is drilling at 460 feet. The location has been made for No. 8 Leffingwell, SE cor. NE SW; also the location for No. 9 Leffingwell, NE cor. SE SW, Section 14-31-10.

Greenwood County

Superior Oil Co.'s No. 9 Browning, C SE NE, Section 19-22-10, was shot with 20 quarts in sand at 2,273-2,340 feet and is making 75 bbls. Empire Gas & Fuel Co. has made the location for No. 4 Gravette, NW cor. SE NE, Section 14-22-11. O'Neill and others have abandoned the location for No. 1 Derbyshire, NE cor. SE NE, Section 17-22-11. Simmons and others' No. 6 Clopton, NW cor. NE NW, Section 18-22-11, had sand at 2,095-2,117 feet, total depth 2,120 feet, and shot with 40 quarts and is producing 25 bbls. Empire Gas & Fuel Co. has the rig on the ground for No. 12 Duby, SW cor. NW NW, Section 23-22-11. Skelly Oil Co. has moved out a machine for No. 19 Wick, NE cor. SW NW, Section 27-22-11. Bement and Amerada Petroleum Corp. have the rig on the ground for No. 1 Swanson, NE cor. SE, Section 9-22-12. Darby and others' No. 1 Boles, NW cor. SW, Section 10-22-12, was shot with 80 quarts in sand at 1,790-1,821 feet and is making 125 bbls. Simmons &

(Continued on Page 129)

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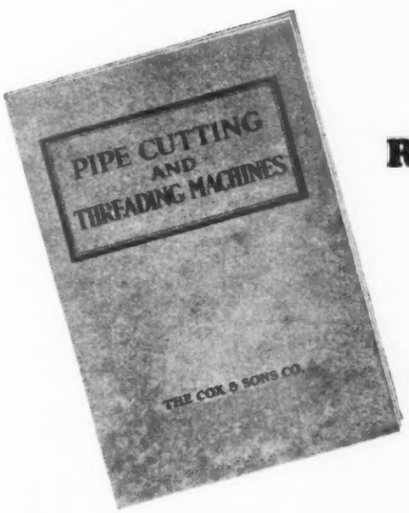

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The OIL and GAS JOURNAL

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LEASES—PRODUCTION

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LEASES—PRODUCTION

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I HAVE for sale one lease of 32 acres and one of 108 acres, each within one-fourth mile of the gusher well in Owsley County, Kentucky. Write E. D. Watkins, Irvine, Ky.

WRITE or wire for our list of lands, leases and royalties; see us for drilling propositions. A. L. Bowles & Co., office phone 878, resident phone 1054-J, Ada, Okla.

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ADDITIONAL CLASSIFIED WANTS ON PAGE 126

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

CLASSIFIED WANTS

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(Continued from Page 125)

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Fort Worth, Texas

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ADDRESSES WANTED

WANTED—The address of Roy Watkins. He worked in the oil field at Desdemona, Tex., and in south Texas and later at Webb City, Okla. Box B-680, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—MAPS

FOR SALE—Latest blue print map of the Turner Valley and adjacent oil fields, with location of wells and proposed wells, oil pipeline, auto roads, etc. Must be seen to be appreciated. J. W. Downes, 224 Eighteenth Ave., West, Calgary, Alberta, Canada. Price $3.50, draft or money order.

CONTINUED FIRMNESS IN THE EAST; GASOLINE PRICES HOLDING WELL

By N. O. Fanning
New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 21. — Continued firmness of gasoline was the feature of the Atlantic Coast refined oil markets during the past week. The weather was particularly favorable, and heavy consumption throughout the week was the rule. It is understood that stocks are piling up somewhat now due to heavier receipts at Atlantic ports, notably of California gasoline. Refiners here view the situation, however, as indicating only that preparations are being made for the natural seasonal increase in demand, and see no unfavorable trend in this development.

Prices of gasoline seem to be holding unusually well. Of course refiners and marketers are watching the crude oil situation closely, but this does not yet seem to have had any effect on the eastern market whatever, and the future alone can decide whether it will. There are no reports of price wars or price cutting of importance, either among refiners or at service stations.

No doubt the local gasoline situation is largely dependent upon the action of Mid-Continent refiners. So long as the latter do not seek to market much gasoline in this territory, it is believed the price structure will hold. Eastern refiners appear to be able to handle the market adequately, with the help of California, but if much tank car gasoline should come in from the Mid-Continent it would not be surprising if competition would develop of such a nature as to affect prices.

Of course the strength of the present gasoline situation on the Atlantic Seaboard rests mainly with the fact that the leading marketers are well able to handle the current output without forcing sales. Perhaps the effect of Seminole has not yet had a chance to reach this distance, but in some quarters it is felt the Seminole situation will be handled satisfactorily and that the oil from this field, produced by a comparatively small number of operators, will not be allowed to depress the market to any great extent, if at all. Opinion is by no means unanimous on this point, however.

Kerosene

The kerosene market continues dull, but there is a tendency on the part of refiners not to press sales, so that increased firmness in prices can be noted. There is no indication of any alleviation in the price wars which have been in progress for some time at Baltimore and Buffalo, where the tankwagon markets are 10 cents a gallon, as against 15 to 16 in other cities.

Water white kerosene continues in especially good demand. Prime white kerosene is not quite so plentiful, a fact which gives promise of a better situation generally in the kerosene trade. Exports of kerosene are still below normal.

Gas and Fuel Oil

The gas oil market is dull, with firm prices.

Diesel oil is firm, with price increases looked for in some quarters. It is understood, however, refiners hesitate to raise the price of this product unless absolutely forced to do so, as they are working to build up a large market for it.

There is no change in the bunker fuel oil market, the price being unchanged. Supplies on the Atlantic Coast are understood to be limited because of the declining imports from Mexico. California and Venezuelan fuel oil are now the chief factors in the bunker oil market, having supplanted Mexico for a time at least.

Lubricating Oil

There has been a substantial improvement in the demand for lubricating oils, coming from the automotive and industrial sources. Along with gasoline, the demand for auto lubs has been at a record this year. The industrial demand has continued rather slow until the last week, when a considerable revival was noted. This is encouraging to marketers of steam cylinder oils.

In some quarters steady improvement will be seen in lubricants and wax from now on. For this reason some refiners are holding out for slightly higher prices.

Petrolatum

The demand for petrolatum is good, with dark green most prominent. Both domestic and export consumption is said to be increasing substantially.

Export Market

The feature of the oil export market here last week was the demand for oils from South America. A shipment of approximately 1,000,000 gallons in bulk was made to Argentina, and cased exports to South America added another 250,000 gallons at least.

In other departments the export demand lagged, and shipments were below normal. It looks now as if the promise of the early part of the year would not be realized, but it may be too early yet to judge.

The following table shows principal exports of petroleum and petroleum products from New York during the past three weeks (all figures in gallons unless otherwise noted):

	Week Ended		
Gasoline:	Feb. 16	Feb. 9	Feb. 2
Bulk	957,038	808,050	740,400
Cases	753,000	1,558,910	1,084,690
Kerosene:			
Bulk	.....	680,450	1,474,400
Cases	482,000	955,130	719,240
Lubricating oil:			
Barrels	928,300	1,457,050	615,150
Cases	55,500	284,570	230,000
Lubricating grease:			
Barrels (lbs.)	1,709,550	2,076,750	593,550
Paraffin wax:			
Bags (lbs.)	746,680	1,920,820	536,140
Barrels (lbs.)	.....	2,076,750	.....
Crude oil:			
Barrels	177,050	.....	.....

The foregoing figures include shipments of 500 bbls., 1,000 cases, or more.

Tanker Market

The oil tanker chartering market has slowed up considerably. The only fixture recorded was that of the tanker Wellfield (Br.), chartered for the Gulf to Europe trade at 47s. 6. per ton.

The United States Shipping Board approved the sale of the oil tanker Chestnut Hill to the Anglo-Chilean Consolidated Nitrate Co. Bids for other tankers were rejected. Bids had been received from M. & J. Tracy, local shipping agents, who are building up quite a tanker fleet, and from the Atlantic Refining Co. The Chestnut Hill was sold for $57,000.

Oil Receipts Heavy

Estimated receipts of crude and refined oil at Atlantic Coast ports for the past week were 4,495,000 bbls., a daily average of 643,000 bbls. a day. Receipts from the Gulf Coast averaged 452,000 bbls. a day, those from the Pacific Coast 68,000 bbls. a day and imports were 123,000 bbls. a day.

Imports from South America rose to 82,000 bbls. a day, from 23,000 bbls. the preceding week, while those from Mexico declined from 47,000 last week to 41,000.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports for the last three weeks; also monthly record for the last 12 months (figures in barrels):

	Week Ended		
	Feb. 16	Feb. 9	Feb. 2
Gulf Coast	452,000	338,000	368,000
Pacific Coast	68,000	94,000	152,000
Mexico	41,000	47,000	63,000
South America	82,000	23,000	34,000
Total	643,000	502,000	617,000

Daily Averages by Months

1927:	Gulf	Pacific	Mexico	S. Am.	Total
Jan.	362,000	73,000	49,000	61,000	545,000
1926:					
Dec.	363,000	57,000	49,000	61,000	530,000
Nov.	335,000	62,000	56,000	40,000	493,000
Oct.	270,000	71,000	61,000	43,000	445,000
Sept.	299,000	98,000	63,000	58,000	518,000
Aug.	320,000	61,000	71,000	46,000	498,000
July	360,000	66,000	115,000	36,000	577,000
June	396,000	104,000	117,000	18,000	635,000
May	318,000	66,000	114,000	25,000	523,000
April	326,000	92,000	126,000	20,000	564,000
Mar.	317,000	97,000	152,000	26,000	592,000
Feb.	332,000	73,000	104,000	18,000	527,000

The foregoing figures are based on the carrying capacity of incoming oil-laden tankers.

Gasolines Slump in Chicago Market

Prices Reduced When Demand Fails to Improve First of Week. Little Activity in Other Products

By J. B. Waldo

CHICAGO, Feb. 21.—The spring-like weather that prevailed over the week-end did not develop any strength in the gasoline market and promptly Monday morning several of the largest refiners reduced their price for U. S. Motor gasoline to 8 or 8¼ cents. These refiners had been quoting for 8¾ cents but were not getting the business and as they explain to meet competition put these new prices into effect.

Apparently other refiners continued their plan of cutting under the larger refiners to get the spot business for several of the larger local distributors report that they have been offered and in cases have bought at 7¾ cents basis Group 3. Marketers also state that motor gasoline is being freely offered at that price out of Group 3. The trade believes that it is only a matter of a day or so until there will be a reduction in the tankwagon markets and that the lower prices are largely in anticipation of this reduction.

The higher tests are a little lower and an average of the market today would be 8 cents for the 437 endpoint, 9 cents for the 400 endpoint and 10 cents for the 375. The blends such as the 60-62 437 are neglected and very weak as the losses are too heavy with present weather.

Kerosene is moving slowly but prices are steady. Distillates are very dull and with the lack of business comes an easier feeling, although quotations of last week are still held but are largely nominal. The zero gas oils and higher gravities of fuel oils are unchanged as to prices today but there is only a little demand for these oils which are gradually losing the premium which they secured during cold weather.

Inquiries continue to be received for heavy fuel oils but little spot business was done on Monday, the strength of the market being due very largely to the firm attitude of refiners and the light offerings of desirable oils.

The Smackover situation was strengthened today by reports that the supplies of good treated crude were being rapidly reduced and it was predicted that the next move in Smackover crude would be upward.

The somewhat greater activity shown by the gasoline market at the beginning of last week did not last. The report of the great increase in crude production for the preceding week had the effect of a wet blanket on whatever intentions the buyers of all classes of petroleum products may have had to place orders and during the remaining days of last week, the market was as dull as it has ever been. Buyers are all waiting for a change in conditions that will make it reasonably safe to place orders in advance of immediate needs and the change they are watching for is a decline in the posted prices of crude. The chief argument offered is the great volume of the present production and the outlook for further increases in the Seminole Field. There are, of course, those who believe that a reduction in the present prices is unwarranted.

Routine Business

Refiners report they are receiving their regular business on contracts. But these orders were placed months ago and the refinery runs planned to care for them. It is the over-runs in excess of contracts or own distribution and the output of refiners that have little or no distribution of their own and only a few contracts to ship on, that are really being pressed for sale. It may be doubted if there is any intelligent, broad thinking oil man today that believes in lower prices for gasoline. But the element of competition comes in for consideration and each distributor feels he must buy as cheaply as his competitor and of course if he can buy a little lower he is that much better off so that in some cases the very dealers who talk of fair returns to all branches in the industry, are the most insistent on lower prices when they are in the market for gasoline. So that the first intimation that prices may decline is the signal for every buyer to ask for a lower price.

The range of prices resulting from the present conditions and the lack of any real demand over the latter part of last week was very wide. U. S. Motor gasoline was sold the same day by different sales organizations at a range of 8¼ to 9 cents. The latter prices were secured by refiners who are holding for 9 cents and have some customers that will buy of them at whatever their price may be. Even at 9 cents there is a good margin to the jobber at the present tankwagon price. Of course, there are many smaller dealers who only buy a car or so a month at this time of the year and some of these prefer to leave the price to their source of supply.

Gasoline Demand

The demand has been largely for the U. S. Motor grade and the higher gravities. The decline for the week in these has been just about a quarter of a cent, in fact that is really the amount of the decline made last week in all grades of gasoline. The only thing holding is the antiknock special gasolines which are not offered so largely as to invite lower quotations.

Kerosene Firm

The kerosene market continues firm but so far there has been little or no progress made in advancing quotations over the market of a week ago, 6⅛ to 6¼ cents. Several refiners advanced their quotation to 6½ cents and others tried to stimulate busines by notifying their customers that shipments of kerosene made last week would be billed at 6⅛ cents if ordered at once and if shipped during the current week the price would be 6¼ cents, with the added intimation that most refiners were now asking 6½ cents, which would be their price after this week. There has been some stocking up at the 6-cent price and probably some have been bought for shipment to storage at 6¼ cents but there has been no great rush of business from any source yet. Some are offering to book orders for shipment over the balance of the month at 6¼ cents and it does not seem that the effort to make a 6½-cent price would be successful until after March 1. Stocks of kerosene are stated to be light but there is a lot of distillate that can be run to kerosene, according to some refiners here.

Distillates Dull

The distillate business has been very dull and prices even with the prospect of some colder weather were decidedly easy at the close of the week. There was a meeting of the Heating Oils Distributors Club last week at which the condition of supplies was discussed and it was stated that fuel oil distributors here had enough oil in stock and on track or due them on contract which they were expected to take in, to last them until next winter if they never bought another gallon. The local distributors are most anxious for at least a week of cold weather to help them get rid of their heavy stocks of not only distillate but of gas and fuel oils.

Gas Oil Demand Light

Gas oil continues in light demand, although there has been no change in quotations. The utility companies are not buying except the smaller ones who do not provide for their full winter requirements. The larger companies are drawing from their tanks or against contracts. These are seldom in the market when the consumption is at its high point. The distributors of furnace oils have ample supplies and those in this city have in several instances cars they cannot take into their storage. Some inquiries have been received for straight-run straw gas oil from smaller gas companies. The price range for a dark cracked gas oil is practically 4⅛ to 4¼ cents and for the zero oils from 4⅝ to 4¾ cents, depending largely on color. Occasionally a distributor might go as high as 5 cents for a light straw, zero oil but these sales are few now.

Fuel Oils Slow

The fuel oil demand is still backward. One of the large steel companies at the opening of the spring run, with substantial business booked, was in the market for a 60 days' supply. Of course the quantity ran to over 1,000,000 gallons but the brief period covered by the purchase which is short for this organization shows the tendency of the industrial buyer to still maintain his position of being in shape to take advantage of any turn in the market in his favor.

The prices for the heavy industrial oils is a little firmer while for the higher gravity zero oils the price is a little easier.

Local oil men who specialize in the fuel oil end say openly that never in their experiences has it been so difficult to close orders nor have they ever known the business to be so dull. There are several, in fact many of our largest consumers in this district who still have contracts which will run until the first of June or July and these contracts will care for their spring operations. The price situation is the alleged stumbling block with many of the buyers and what contracts have been closed have been at low prices. The order of the steel company referred to called for a 22-26 refinery fuel oil with very decided specifications as to sulphur content, viscosity and flash and at least a large part of it was placed at $1.20 per barrel, Group 3 in sellers' cars. Many bidders named the price of $1.25 per barrel. Some sellers believe a cut in crude prices would remove a certain amount of uncertainty and result in considerable business.

No Change in Lubs

Lubricating oils are really unchanged. The demand is good in tank car lots on orders from the compounders and the larger trade. Stocks are not large especially of neutrals. Pennsylvania grade oils are hard to buy right now. Refiners are shipping in drums to their own distributors and dating the invoices April 1, thus keeping the refinery fairly clean of stock. The smokestack trade is steady. Some export inquiries have been received here but nothing important has developed.

Consumption Excellent

Local distributors report their gasoline gallonage is running well ahead of last year. In spite of the wide spread between the refinery market and the tankwagon prices, there is no great amount of price cutting. There is, however, a great deal of rebating and giving of discounts and the dealers insist this form of selling corresponds with them to the Q. D. A. of the larger companies. The dealers in the city and over the territory are finding it rather difficult to define a policy with regard to either discounts or the so-called knockless gasolines. There are some who simply meet the Q. D. A. as it applies to their own customers. Of course, where the shoe pinches with them is the intracity trade, the giving of a discount on a quantity bought by agents or members of an organization over a large part of the territory.

Then the popularity of the special grade of gasoline. Many expect the final end of the matter will be a higher grade of gasoline at the regular price, say a 60-62 400 to 410 at the same price as is now asked for the 58-60 437 grade. Refiners claim if this is done generally it will reduce the quantity of gasoline from a given quantity of crude by from 5 to 10 per cent. This would seem to necessitate the asking of a higher price and if this is done it might give the sellers of the present U. S. Motor grade an opportunity to retain its popularity by selling at a little lower cost. The question can hardly be settled in any way except through experience. Another season should determine the matter.

PENNSYLVANIA MARKET REPORTED VERY WEAK

OIL CITY, Pa., Feb. 19.—Gasolines and naphthas are now very weak in the Pennsylvania refined market. During the past week consumption actually increased some as the ice and snow were gone from the improved roads. However, the bad weather of past months has been having a steady effect in connection with the piling up of surplus with the result that stocks of motor fuel throughout this district are very heavy and consumption is not yet equal to production. It will take many continuous days of good motoring weather to cause any real material improvement in the situation.

Kerosene is also weak and the demand is not so good as it has been. However, this is just ahead of the period of demand and in a few more weeks the consumption of kerosene for tractor use will be on again.

Neutrals continue scarce and in good demand. They are a little freer than they have been. There was no change in wax during the week and it is still soft. Fuel oil is in good shape with firm price. Cylinder stocks were unchanged. Bright stocks are in an improved position.

SHREVEPORT MARKET FURTHER WEAKENED

SHREVEPORT, La., Feb. 21.—A week of inactivity in the gasoline market for the Shreveport territory further weakened the product and though no immediate relief is expected in the local trade territory until after the first of next month, refiners believe the U. S. Motor grade gasoline price has reached its bottom. At the first of the week gasoline was being quoted to the trade at 8⅝ to 9 cents.

Rather than dispose of the product at less price several refiners are storing or are going to start storing gasoline, with the hope for an improved market in the near future. Natural gasolines reacted downward and were slow throughout the week.

Kerosene was firm in price but did not improve in demand. Gas oils were weak but expected to improve with an increase in consumption in northern states due to the cold wave. Fuel oil was the strongest of the products in the Shreveport territory. Its movement was steady and its price firm.

Ammonia in Arresting Corrosion

Satisfactory Mechanical Results with Corrosion of Vapor Lines and Condensers Practically Eliminated

By D. E. Pierce*
Atlantic Refining Co., Philadelphia

The major corrosion problems encountered in our refineries fall into the two classifications already established by such investigators as Matthews and Crosby, Wilson and Bahlke, and others. That is to say, in the first place, the distillation of crude petroleum is accompanied by the evolution of hydrochloric, sulphurous and sulphuric acids with their inevitable results in the presence of moisture. In the second place, the high temperatures required in pressure stills break down sulphur compounds in the gas oil. The resultant evolution of hydrogen sulphide is then followed by steady inroads upon all parts of the equipment where these high temperatures are maintained.

Methods proposed for solving the problems are as simple and as easily stated as the problems themselves. Removal of the offending constituent before treatment is one obvious method which would, however, involve the complete elimination of brine from crude before distillation and the removal of all sulphur from pressure still charging stock. Another line of attack is to accept the presence of the corrosive materials and either to provide easily renewable parts to receive the bulk of the acid's activity or else to use materials of construction capable of resisting the attack. A third solution of the difficulty consists in adding an alkali to neutralize partially or completely, the acids responsible for the trouble.

Use of Metals

No reasonably successful or economical method has been made public for the complete elimination of brine from crude, nor has the removal of sulphur been found practicable except for gasoline and kerosene. Accordingly, the first of the methods mentioned in the preceding paragraph has been relegated to the background. As to the second method, meeting the trouble by choice of material of construction, our methods have included both the use of renewable corrosion "straps" and also the choice of resistant metals wherever possible.

For example, in the Lewis pressure still, a rapid corrosion of the upper part of one of the drums or tanks has been overcome by installing a protective strap of low carbon chromium iron alloy in the vapor zone. For the same service, an aluminum coated plate has also withstood the corrosive conditions very well. The large vertical shells of the Lewis stills in which the hot stock is held after passing through the heating system are made of steel seven-eighths and one inch thick and are tested periodically by drilling test holes. When corrosion has reduced the thickness to one-half inch, the unit is condemned for the original pressure service.

Neutralization, the third general means of combating corrosion, has been favorably commented upon in many articles during the past few years so far as crude running is concerned, but for pressure still work its advantages appear to be in doubt. For that reason, our efforts at neutralization have been confined to crude running. Because of generally unsatisfactory results reported for caustic or lime, the reagent chosen for neutralizing the hydrochloride and other acids resulting from crude running is aqueous ammonia.

Since the details of adding ammonia may be of interest to refiners who are now contemplating this method of arresting corrosion, the accompanying sketch is included. This shows the arrangement used during the past six months for introducing ammonia into our fractionating pipe stills, where coking crude is run continuously. From the storage tank, the solution is forced by air pressure to an elevated charging tank. From the latter, it flows by gravity to a small hydraulic pump, three-quarters inch suction, three-eighths inch discharge. This pump, which is driven by a system of levers from the oil-charging pump, delivers the neutralizing solution into the crude oil discharge line from the main pump Since the stroke of the ammonia pump can be varied within certain limits and since the solution can be varied in its NH_3 content, a very satisfactory control of the reagent is thus provided.

The arrangement shown introduces a solution of 17 to 22 per cent NH_3 directly into the crude oil before it enters any exchangers. The amount generally used represents 25 pounds of NH_3 per 1,000 bbls (50 gallons each) of crude charged. After passing through the Admiralty metal tubes of a series of heat exchangers the crude, with accompanying ammonia, passes through a pipe heater. The ammonia and steam pass off with naphtha vapors through a fractionating column, and then through a series of vapor heat exchangers and condensers using Admiralty metal tubes. The water is finally separated from the condensed naphtha in a water separator.

Results Obtained

Without going into extensive detail, it can be stated that the method of adding ammonia here described has not only work very satisfactorily from a mechanical point of view, but that it has practically eliminated corrosion of vapor lines and of condensers, contrary to what might be expected, no copper being detected in the condensed water. In fact, except for the formation of ammonium chloride crystals in the top section of the vapor exchanger, no difficulty of any sort has been experienced. These crystals are easily washed out with water during any shutdown period.

The question of the quantity of ammonia required will probably be raised. Our semi-works-scale experiments, later confirmed in the plant, showed that a considerable excess of ammonia gave clear water condensate, free from iron or copper, whereas the theoretical ammonia gave a black solution carrying large amounts of iron sulphide in suspension. Analytical results indicate that about one-third of the ammonia passes throughout system unchanged, so that there is an excess of 50 per cent over the amount actually used to neutralize HC1 and H_2S. Reduction of this excess is quite possible, according to some recent experiments, but the exact minimum has not been determined.

Evidently, the final solution of the two major corrosion problems of the industry (attacks by acid condensate in crude running and by sulphur compounds in pressure still operation) has not yet been accomplished. Whether elimination of corrosive agents, use of very resistant materials of construction or neutralization of acids will finally prove most satisfactory is a question for future decision. In any event, the problem is one of such seriousness as to commend itself to the consideration of every engineer.

Notes on Use of Ammonia at Atlantic Pipe Stills

By W. Samans
Chief Engineer, Atlantic Refining Co.

System

The equipment used for the introduction of ammonia includes the following:

1 An underground storage tank into which the drums of ammonia are discharged by gravity. The required amount of water is also discharged into this tank by gravity. The ammonia, as purchased, is about a 29 per cent solution. This is diluted, because in warm weather the concentrated solution gave trouble with gas binding on the pump. The solution used contains 17 per cent NH_3. For Panhandle crude the same volume of solution was charged, but the concentration was raised to 22 per cent.

2. An elevated tank into which the ammonia solution to be charged is blown by air pressure. The flow from this tank to the ammonia pump is by gravity, through a ¾-inch line.

3. An ammonia pump. This pump is a ¾-inch Goulds hydraulic pump. It has a ¾-inch suction and a ⅜-inch discharge. The plunger is ¾-inch in diameter and the stroke is variable. The valves are simple ball check valves in the suction and discharge lines. The pump is driven by a system of levers fastened to the charging pump. The discharge line from this pump leads into the discharge line from the charging pump. The rate of charge of the ammonia is such that 25 pounds of NH_3 is charged per 1,000 bbls. of crude.

History

A. Before the ammonia was used the following things occurred:

1. The seats and gates of the valves in the crude lines were badly corroded.

2. Water from the water separator was acid.

3. Water from the water separator contained .03 per cent Fe. This was equivalent to .5 pounds per hour from each still, of iron.

4. The steel spools between the sections of the condenser were perforated by the corrosion during the period from March 1 to May 25.

5. These were replaced by steel spools on No. 203 still and lead-lined steel spools on Nos. 201 and 202 stills.

6. On June 14, 1926, the water from the water separator showed .03 per cent Fe, .03 per cent sulphur and acidity of .09 per cent H_2SO_4. It contained a grayish green sediment which showed 82 per cent sulphur and 2.5 per cent iron on analysis.

The HiVis stream contained a trace of iron.

The bottoms stream contained a trace of iron and slight trace of copper.

7. One day thereafter the water from the separator showed .023 gms. HC1/100 cc., .049 gms. Cl_2/100 cc. and the presence of sulphate.

B. The ammonia was first used on

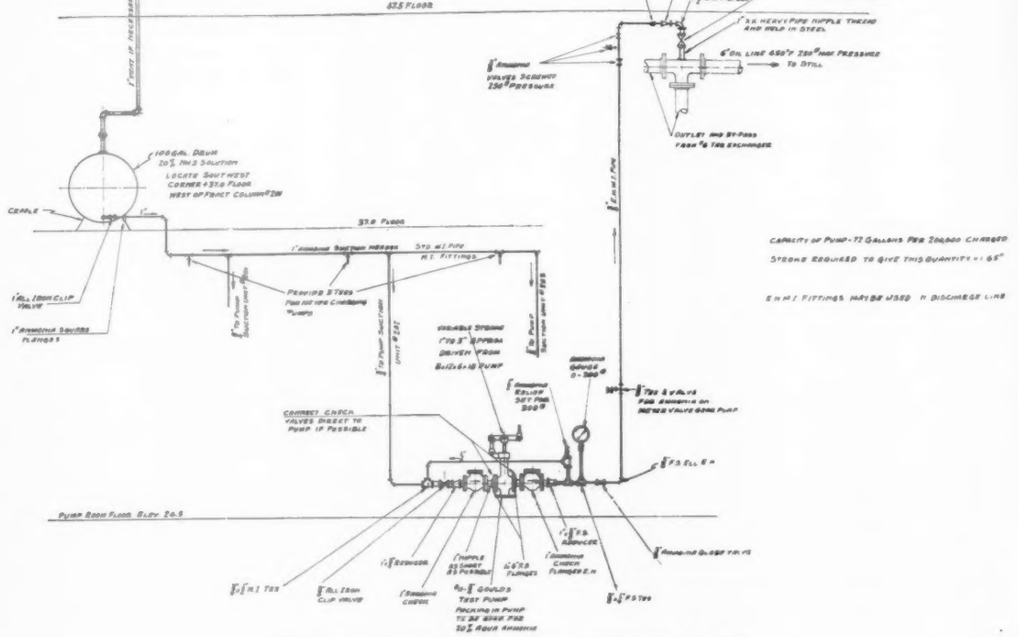


Diagram of ammonia charging system for 3,500-bbl. pipe still.

*Presented at A. I. M. E. meeting, New York, February 14-17.

June 16, 1926. It was put into the system at the vapor outlet from the still. After this system was put in:

Results From Use

1. The water showed alkaline and contained no Fe

2. Small amounts of NH_3 gave a turbid water. This was alkaline, but contained suspended iron.

3. On July 1, 1926, and July 2, the water from the separator showed the following analysis:

Date—	Still No.	% NaOH as Alkalinity	% Na_2S as Sulphide	FE	Cu
7-1-26	201	.013	.16	None	None
7-1-26	202	.024	.13	None	None
7-1-26	203	.032	.12	None	None
7-2-26	203	.016	.14	Trace	None

C. The ammonia was pumped into the discharge line from the charging pumps on July 3, 1926.

The following things have been noted:

1. The trouble with corroded valve seats and gates in the crude line is much less. No quantitative data is available.

2. An exchanger cleaned July 30, after the ammonia had been put through the tubes, was again cleaned September 3. Analysis showed 4.16 per cent copper.

3. An exchanger cleaned on September 5 showed 5.36 per cent copper in the analysis of scale.

4. On July 9, 1926, the water from the separator showed the following analysis:

Still No.	Gms. NH_4OH	$(NH_4)2S$	NH_4HS	Fe	Cu
201	.004	.150	....	Present	None
203	.009	.077	....	Present	None

Discussion of Results

In summarizing the above data it will be observed that:

1. With no ammonia, the water from the separator is practically clear, except for small sulphur crystals It has an acid reaction and carries Fe and Cu in solution.

2. With the addition of a certain amount of ammonia, the sulphur comes down in a colloidal form, giving a milky appearance to the water, which is still acid to methyl orange, and contains Fe and Cu.

3. When sufficient ammonia has been added to make the water neutral to methyl orange, the solution is intensely black with FeS.

4. As more ammonia is added the water becomes lighter in color until at an alkalinity equivalent to 30 cc. of N/10 H_2SO_4 per 100 cc. of water (—.51 gms. NH_3/liter) the black color has almost disappeared.

5. As still more ammonia is added to the equivalent of 40 cc. N/10 H_2SO_4 per 100 cc. of sample, the water becomes clear and shows no Fe or Cu in solution. This shows that corrosion from this source has been stopped. This is equivalent to .68 gms. NH_3 per liter or .28 pounds per 50-gallon bbl. 25 pounds of NH_3 is charged per 1,000 bbls. of crude. This then is equal to .715 pounds of NH_3 per bbl. of water charged. Thus approximately one-third of the NH_3 goes through the system unchanged.

6. No quantitative data are available on the life of the spools in the condenser since the material of these was changed at the same time the ammonia was added.

7. No quantitative data are available on the corrosion of the valves in the crude line, but the trouble is considerably less.

8. The corrosion of the exchangers on the stream side does not seem to be affected.

9. The ammonia chloride is deposited in the top section of the vapor exchanger and in collecting here tends to block the vapor passage. This put a back pressure on the top of the column. It can be removed during a shutdown by washing out with hot water.

KANSAS FIELDS

(Continued from Page 122)

Rhodes' No. 1 Blank, NE cor. NW NW, Section 33-22-13, has been abandoned at 1909 feet. Roth, Faurot and others' No. 1 Laird, SW cor. NW, Section 10-23-10, is producing 15 bbls. after a shot of 20 quarts in sand at 2,005-12 feet. No. 2 Race, C S half S half NW, Section 19-23-10, is dry and abandoned at 2,325 feet. Marland Oil Co.'s No. 3 Edwards, NE cor. SE NW, Section 7-23-11, is dry and abandoned at 2,087 feet. Empire Gas & Fuel Co.'s No. 3 Edwards, NW cor. NE NW, Section 21-23-11, has been shot with 180 quarts in sand at 1,894-1,960 feet and is making 350 bbls. The rig is being built for No. 5 Edwards, NE cor. NW NW, Section 21-23-11. The rig is on the ground for No. 6 Edwards, NW cor. Section 21-23-11. Simmons and others' No. 5 Ellis, SE cor. NW SW, Section 26-23-11, was shot with 140 quarts and is making 175 bbls. The total depth is 1,914 feet and was plugged back to 1,909 feet. Haverhill Petroleum Co.'s No. 16 Inthurm, SE cor. NW SE SE. Section 4-23-13, is making 40 bbls. from sand at 1,584-1,614 feet after a shot of 80 quarts. McGinnis and Manhattan Oil Co has the rig up for No. 2 Mock "A," SE cor. NW NE, Section 36-24-10. Harwood & Winters and Marland Oil Co. are building the rig for No. 1 Ladd, NE cor. NW NW, Section 35-25-8. McGinnis and others made location for No. 1 Hammond, SW cor. NW, Section 10-25-10. Callahan & Ainsworth made the location for No. 1 Deets, NE cor. SW, Section 11-25-11. Mendenhall and others have made location for No. 1 Gilroy, SE cor. NW, Section 5-25 13.

International Oil Co.'s No. 1 Edwards, SE cor. SW NW, Section 7-26-10, has been abandoned at 2,531 feet Transcontinental Oil Co.'s No. 9 Atyeo "A," NW cor. Section 31-21-10, shot 140 quarts in sand at 2,169-2,202 feet and is producing 35 bbls.

McPherson County

Otstot and others have the rig up for No. 1 Okerland, SW cor. NW SE, Section 22-18-2.

Marion County

Nicolls and others' No. 1 Propp, C NE SE, Section 32-18 4, is dry and abandoned in sand at 2,681-82 feet. Propp and others' No. 1 Propp, NE cor. SE NW, Section 20-19-4, is dry at 2,696 feet. Tulsa Oil Co. and others made location for No. 1 Harrison, NE cor. SE, Section 19-20-4. Sheedy and others' No. 1 Allison, SW cor. NW SE, Section 13-21-4, has been abandoned at 2,363 feet Cameron and others made location for No. 1 Berns, NW cor. NE SW, Section 2-22-3.

Sumner County

Phil-Mac Oil Co.'s No. 1 Mauric, SW cor. SE, Section 23-30-2, is dry and abandoned at 3,744 feet. Roxana Petroleum Corp. made the location for No. 4 Riverbed, CWL SW SE NW, Section 25-31-2. Location has also been made for No. 4 Mason, SW cor. SE NW, Section 25-31-2.

ROCKY MOUNTAIN AREA

(Continued from Page 55)

runs have fallen to a period considerably below refinery requirements. Oil men in touch with the situation also look for extensive wildcatting in Montana during the coming season. Several new ventures are to be noted at this time. The Carter Oil Co. has spudded in on its test on the Johnson ranch, on the south bank of the Marias River; E. J. Parkinson is moving tools from Winnett to a location just east of the Musselshell River, in the Cat Creek district. The Myers Development Co.'s well near Valentine, which has been shut down for several months at 1,300 feet, will resume drilling about March 1.

The Frantz Corp. will drill a well on the Greene tract, in the Cat Creek Field, and is reported to be preparing to deepen an old well on the same tract. There has been no drilling done in the Cat Creek Field this winter. The Cat Creek Field came up for discussion recently at the hearing of the legislative investigating committee, and it was intimated that the production of the field was being held down intentionally. W. F. Brittain, secretary of the Montana branch of the Rocky Mountain Oil & Gas Association, asserted that decrease in production is due to a natural decline, giving figures compiled by the Public Service Commission to substantiate the statement.

In the Kevin-Sunburst Field, the California Petroleum Corp. found a small commercial production in the Ellis sand in its No. 14 Lashbaugh, but is still drilling. If nothing of value is found in the Madison, the well will probably be plugged back. The same company's No. 4 Newman is rated as a gas well producing 3,000,000 feet. The well will be given a shot, as it showed a little oil. The Pass Oil Co., Ltd., drilling on the Putnam lease, found both the Sunburst and Ellis sands dry, and the hole will be plugged and abandoned.

The Bull Dog Oil & Gas Co.'s well on the Hidden Water Dome, 13 miles southeast of Baker, Mont., reports showings of oil, accompanied by considerable gas pressure. The well will be given a test within the next week or two. The showings were found in what is thought to be the Eagle sandstone, and while not expected to be commercial, they are thought to indicate production in the Muddy sand, which is expected at about 2,300 feet.

FIELD RUNS

Salt Creek	41,460
Teapot	1,040
Big Muddy	2,750
Grass Creek	2,860
Elk Basin	960
Greybull	20
Rock Creek	3,060
Rex Lake	200
Lance Creek	760
La Barge	300
Poison Spider	220
Osage	330
Hamilton Dome	420
Lander	170
Byron	50
Lost Soldier	3,580
Simpson Ridge	40
Ferris	30
Hogback	870
Cat Creek	2,420
Lake Basin	190
Kevin-Sunburst	11,000
Florence	400
Rattlesnake	1,510
Moffat	2,655
Tow Creek	330
Fort Collins	3,990
Boulder	25
Rangely	100
Artesia	2,000
Table Mesa	110
Miscellaneous	50
Totals	83,900

INSTITUTE NAMES CORROSION COMMITTEE

(Continued from Page 32)

is bringing practical results. At least four important conferences on this subject have been held during the last five months. Those interested in steel frame structures are taking steps to study vulnerable points on account of the failure of some minor parts in certain buildings after 35 years of service. The steam power plant group, including the railroads, realize the importance of a better knowledge of corrosion, especially under modern high temperature boiler operations. The chemical and refrigerating industries have already conducted a systematic study of depreciation of metals by corrosion, for which they have spent considerable money and time the last two years with encouraging results. More has probably been done to control corrosion in the atmosphere and in closed water systems, because the work on these phases of the problem started over 15 years ago and the important factors are now fairly well understood.

"As a result of this work, there is now little excuse for corrosion in water conduits, recirculating condensers and cooling systems, because economical means of prevention have been worked out to meet nearly all situations where such corrosion occurs. The entire Pittsburgh water supply was treated at a cost of only 33 c. per 1,000,000 gallons and the rate of attack on the pipes was reduced to not over 20 per cent of what it was before the treatment Yearly damage to water mains in Baltimore is estimated at $300,000 and in New York City at $5,000,000, not including damage to water conduits in buildings. In some cities corrosion is recognized by water work's engineers as a major problem.

"In the oil industry, there are evidently three general classes of corrosion, relating to: (1) Production, (2) transportation and (3) refining.

"(1) Production: Some fields, those of California for example, have little corrosion trouble in the wells. In others this is a major problem and should be a strong incentive to the development of more resistant metals at a reasonable cost. E. G. Woodruff,[1] consulting geologist, has pointed out that more of the oil of the future will probably come from the limestone areas rather than from the sands and oil from the former seems to be accompanied by a higher sulphur content. The corrosive sulphur compounds cause a high corrosion rate even in the absence of oxygen; the sulphur and sulphide of iron deposited upon the metal surface have a strong electrolytic and depolarizing influence, which accelerates the rate of solution of the metal.[2] The high chromium-iron alloys seems best suited to meet this condition but are at present too expensive for general use. Corrosion from such causes will probably become more pressing as time goes on. In the producing departments in certain limited areas, corrosion trouble is now very serious and threatens to limit the operating life of some fields unless an economical remedy is found. Wells costing $40,000 to drill have been lost through corrosion and the production in others has been considerably curtailed.

"(2) Transportation: The actual loss to the industry from corrosion at present cannot be estimated accurately. The chief engineer of the Prairie Pipe Line system recently stated that corrosion in underground pipelines exacts an annual toll in the United States of at least $100,000,000. One company in the West reports an annual expenditure of about $600,000 in combating pipeline deterioration.

"(3) Refining: In oil refineries some progress has been made towards minimizing corrosion of equipment by chemical treatment of the product or by the use of more resistant materials, but corrosion is still a major problem, as is indicated in the recent paper by H. F. Perkins.[3]

"In view of this situation, an organized and concentrated effort is necessary to get the data needed to apply remedial measures. Once such a movement is started under proper auspices, it should receive the unqualified support of all branches of the oil industry. Perhaps there has been too much detached investigative work in the past. The problem is of such general interest that it would seem to be one that could be attacked to advantage by the concentrated force of the industry as a whole. The writer has previously suggested a Central Institute of Corrosion Research, supported by the National Government and private interests, with facilities to study the common basic factors of the problem. Whatever is done, however, it is useful to take an inventory of progress periodically. The program arranged for this symposium promises to be another important contribution to the literature of this subject."

[1] E. G. Woodruff: Geological Report on Sulphur Oil Areas Proc. Am. Pet. Inst., (1926.)

[2] R. Stumper: Researches on the Corrosion of the Cast-Iron Conduit Pipes of the Mondorf Baths. Revue Technique Luxembourgeoise (No. 6, June, 1923); also, R. L. Ginter: R. L. Report on Chemical Phase of Steel Tank Corrosion Problem, Proc. Am. Pet. Inst. (1926).

[3] H. F. Perkins: Corrosion of Refinery Equipment. A. I. M. E. Pamphlet No. 1620-G.

KILLED IN OIL FIELD

John Wesley Thompson, aged 33 years, a former resident of Oil City, Pa., was instantly killed by the explosion of a boiler while working in the oil fields at Sullivan, Ind., where he was employed as as a driller.

KILLED ON BULL WHEEL

BORGER, Tex., Feb. 19.—With a cable entwined about his neck and dragging him over the bull wheel, Leon Polk, 19, was accidentally killed here, while working on an oil derrick for the Phillips Petroleum Co.

J. J. GRANT DIES

BURKESVILLE, Ky., Feb. 19.—James J. Grant, who came here from Kansas and Oklahoma Fields in 1922, as a contractor in this field, died this week at the home of his father-in-law, J. U. Curtis, in this county. Mr. Grant was for a long time with the Prairie Pipe Line Co.

REFINING AND MARKETING

MORE STATES PROPOSE HIGHER GASOLINE TAX

Just half of the states in United States now have bills introduced in their legislatures calling for an increase in gasoline taxes. The past week saw several new bills introduced in the legislatures in different parts of the country. Bills have been introduced in Illinois, Massachusetts, New Jersey and New York, the only states which at the present time do not have gasoline taxes.

During the past week a bill proposing an increase in the Texas tax from 1 to 3 cents passed the lower house. It is expected that the bill will be passed by the Senate and will become a law with the Governor's signature within a couple of weeks.

Following is the latest list of proposed changes in state gasoline taxes. Prices given in cents per gallon.

State—	Present Tax	Proposed Tax
Arkansas	4	5
California	2	3
Colorado	2	3
Illinois	0	2
Kansas	2	3
Maine	3	4 or 5
Maryland	2	3½
Michigan	3	4
Missouri	2	3
New Jersey	0	2
Nebraska	2	3
New Mexico	3	4
New York	0	2
Oklahoma	3	4
Oregon	3	4
Pennsylvania	2	3
South Dakota	3	4
Tennessee	3	4 or 5
Texas	1	3
Washington	2	3
West Virginia	3½	5
Wisconsin	2	2½ or 3
Wyoming	2½	4 or 5

N. P. A. SEMI-ANNUAL AT CAMBRIDGE SPRINGS

NEW YORK, Feb. 19.—A meeting of the trustees of the National Petroleum Association held here was attended by Fayette B. Dow, counsel; O. P. Keeney, president; Howard Green, of the Kendall Refining Co.; E. M. Lyons, of the Tiona Refining Co; E. F. Tarbox, of the Independent Refining Co., and R. O. Wotowitch, of H. L. Doherty & Co. Several members were also present.

It was decided to hold the semiannual meeting of the association at Cambridge Springs on April 28 and 29, and a tentative program was arranged. On the first day two outside speakers, who have not yet been decided upon, will talk. The work of several departments of the association will be discussed, including that on trade and commerce, the traffic department, and the department of insurance. Cost accounting problems will also be taken up on the first day.

For the second day the program includes discussion of manufacturing problems, with reports from the Department of Standards and Tests and other departments.

O. P. Keeney, president of the National Petroleum Association, said that satisfaction was expressed at the meeting of trustees at the progress being made by the various departments, and particularly the work being done by the Fire Marshals' Association, which handles the fire hazard problems of the National association.

BEFORE TRADE COMMISSION

CHICAGO, Feb. 19.—L. V. Nicholas, president of the National Petroleum Marketers Association, and James A. Gilmore, secretary of the American Oil Men's Association, were before the Federal Trade Commission this week at the request of the commission. From statements made the commission was seeking the views of oil men, who were expected to be in position to give them an intimate and, at the same time, broad view of the industry. After the hearings the visitors were asked to make a written statement of their suggestions.

PATENT OFFICE SUSTAINS STANDARD IN RED CROWN TRADE-MARK CASE

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 19.—The interference proceedings of the Standard Oil Co. of Indiana against the Independent Oil Men of America in the matter of the trade-mark "Red Hat," applied for by the latter, has been decided by the examiner of interferences in favor of the Standard Oil Co., the limit of appeal to the Commissioner of Patents being March 18, 1927. On that day if there is no appeal taken the patent office will recognize only the trade-mark "Red Crown," previously adopted by the Standard Oil Co., and will then formally announce this decision, which is now marked on the record as "pending." This decision was rendered after a rehearing of the case, which had previously been dismissed.

If an appeal should be taken by the Independent Oil Men of America to the Commissioner of Patents, another appeal would be open from his decision to the Court of Appeals of the District of Columbia.

This cause came on for final hearing upon an opposition filed by the Standard Oil Co. of Indiana to the registration by the applicant of the "Red Hat" as a trade-mark, the basis of the notice of opposition being that the "Red Crown" trade-mark of the opposer and the "Red Hat" trade-mark claimed by the applicant were unduly similar, etc. The Standard Oil Co. represented that it had

(Continued on Page 140)

TO APPEAL DECISION

CHICAGO, Feb. 19.—L. V. Nicholas, president of the National Petroleum Marketers, in a letter sent out to the association membership announced that the decision of the patent office relative to the use of the trade-mark "Red Hat" would be appealed to the Federal courts. The Independent Oil Men of America, to which the trade-mark belongs, is the advertising branch of the National Petroleum Marketers Association.

In his statement Mr. Nicholas said: "'Red Hat' versus 'Red Crown' now goes to battle in real earnest."

C. L. MAYHALL RESIGNS

C. L. Mayhall, widely known in refining and marketing circles in the Mid-Continent Field, has resigned as vice president of the Imperial Refining Co.

C. L. Mayhall

and Kettle Creek Refining Co. and president of the Imperial Oil Marketing Co. He will devote his entire time to private interests.

His successor with the Imperial and Kettle Creek companies has not been announced.

LINCOLN OIL PLANT AT ROBINSON OPERATING

The rebuilt refinery of the Lincoln Oil Refining Co. at Robinson, Ill., is now operating. So many changes and enlargements were made in the refinery that it is now practically a new plant.

The plant has a rated capacity of 5,000 bbls. daily and is complete in its operations refining all light end products, lubricants, wax and asphalt. Holmes-Manley cracking units have been installed with a combined capacity of 5,000 bbls. daily. In other phases of its operations the plant incorporates the latest improvements in refinery equipment.

The company is controlled by the Ohio Oil Co., the largest producer in that section and through the Illinois Pipe Line Co., an allied company, is the largest pipeline operator in the Illinois Field. Officers of the Lincoln Oil Refining Co. are: J. K. Kerr, Marshall, Ill., president; H. B. Carpenter, Findlay, Ohio, vice president; W. B. Wilson, Findlay, Ohio, secretary, and F. A. Billstone, Findlay, Ohio, treasurer.

H. L. Deming, of Robinson, is general manager of the company and in charge of the refinery. R. E. Luton is plant superintendent and N. T. Stover, sales manager.

NEW GASOLINE PLANT AMONG THE LARGEST

With an initial capacity of 24,000,000 feet of gas daily, the No. 12 natural gasoline plant of the Sinclair Oil & Gas Co. in the Seminole Field of Oklahoma started operating the past week. Due to the large gasoline content of the gas the actual output of this plant will shortly be among the largest in the Mid-Continent Field. The gas with which the Sinclair plant is operating has a gasoline content as high as 9 gallons per 1,000 cubic feet with an average content estimated at 4½ gallons. Sufficient gas is available to operate the plant capacity as soon as all construction fentures are completed.

The new plant is similar to other Sinclair plants in design and equipment. The plant has twelve 170-horsepower Cooper units with eight Newton absorbers. Two Type I Braun units with a combined capacity of 80,000 gallons daily will handle the distillation operation.

The exact location of the No. 12 plant is the NW, Section 34-9-6. The Sinclair company has ordered equipment for another plant in the Seminole Field to be located in NE. Section 22-8-6. The company also has under consideration the building of a plant in Section 10. In the east extension of the Burbank Field of Oklahoma, the company is building a 10,000-gallon plant. This plant is located in the NE, Section 34-27-6.

EXAMINER RECOMMENDS COMPLAINT DISMISSAL

WASHINGTON, D. C., Feb. 19.—Examiner G. J. Hall, in a report just announced recommends to the Interstate Commerce Commission the dismissal of all complaints concerned with reparations on shipments of thousands of carloads of crude oil and refined products from Oklahoma, Kansas and the East St. Louis and Wood River, Ill., groups of refiners to points in Indiana, Kentucky, Michigan, Ohio and Pennsylvania. It is estimated that between $10,000,000 and $15,000,000 in reparations are involved in the cases now pending.

Examiner Hall's report stated that the issue is one of tariff interpretation only. He said the petroleum companies base their claims as to shipments from Kansas and Oklahoma primarily upon the theory that joint rates were in effect from points in those States which, they contend, should have been applied to their shipments and, in the event these joint rates were not applicable, they contend, there were several combination bases applicable which made lower charges than those assessed.

As to shipments from Roxana and East St. Louis, the complainants contend that joint rates to Chicago and contiguous points in Indiana, named in tariffs of various individual carriers, applied at unnamed intermediate points under the terms of intermediate rules published in such tariffs.

Examiner Hall's report states in conclusion:

The tariff provisions relied upon by complainants do not in any way support their contentions, and the many decisions cited by them as to unrestricted rates applying over grossly circuitous routes are not in harmony with more recent decisions of the commission on the same subject.

"The further fact, so insistently urged by interveners, that they will be seriously hampered in their business transactions if these so-called trick rates and overtechnical tariff constructions are to prevail, is worthy of serious consideration as indicating the construction placed upon these tariffs by other petroleum shippers.

"The commission should find that the rates charged were applicable and not unlawful. It is therefore recommended that the complaints be dismissed and an appropriate order entered to that effect."

MEETING OF ILLINOIS OIL MEN

CHICAGO, Feb. 19.—The meeting of the Illinois Petroleum Marketers Association which was held at the Abraham Lincoln Hotel in Springfield, Ill., on February 16-17, was one of the best state meetings held in this State. The registrations numbered 250 and included a large number of the active jobbers of the State. After hearing Highway Commissioner Sheets speak for a gasoline tax and Roswell Mason against it, the meeting decided to oppose the passing of any bill levying a tax on gasoline that had not been first submitted to a popular referendum.

Bert Taggert, of the Sweeney Gasoline and Oil Co., Peoria, Ill., was elected president and R. T. Barbour, of the De Kalb Independent Oil Co., of DeKalb, Ill., was chosen vice president. C. A. Prim was again elected as full-time secretary. For the first time there was a representative number of oil exhibits.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

WATER AND SEDIMENT BY DISTILLATION AND CENTRIFUGE

What are the details of the method for determining sediment and water in crude oil? I believe the centrifuge is of considerable practical value in the testing of oil from individual wells for sediment and emulsion as it will often show that the pumping equipment is in bad shape, thus causing excessive emulsion to be formed.—F. W. G.

The common practice is to determine water and sediment by means of the centrifuge, but this method is not accurate so far as the quantity of water is involved. The quantity of water found by means of the centrifuge is frequently lower than the true percentage and the line of separation is not always distinct enough to permit exact readings. Many testers use gasoline for diluting the oil before making the sediment test, but this is a mistake, especially when there are appreciable quantities of asphalt present; the asphalt bodies may be thrown out of solution by the gasoline so that the sediment would thus be increased and a false quantity obtained. Carbon bisulphide, carbon tetrachloride and benzol are better solvents. The volatility of carbon bisulphide is very low and it easily ignites so it is objectionable. Benzol is the material required in the accepted methods. When exact results are desired water and sediment should be determined separately.

Water may be determined in bituminous material by distilling the substance in the presence of a volatile solvent. This method is suitable for a variety of materials but is especially applicable to petroleum, fuel oil, road oil, coal tar, water-gas tar, coke-oven tar and other petroleum products or bituminous materials. The apparatus consists of a still provided with a reflux condenser which discharges into a trap connected to the bottom of the condenser. The trap is marked in graduations so that it serves to collect and measure any condensed water; the condensed solvent which may have come off with the water overflows and is returned to the still. The solvent may be coal-tar naphtha or a light oil 98 per cent of which shall distill between 248 and 482 Fahrenheit. This is known as the A. S. T. M. method which is fully described under Method 300.11, page 67, Technical Paper 323-A, United States Bureau of Mines.

Sediment may be determined with satisfaction by means of the centrifuge, the important factors in addition to the solvent, benzol, include the speed, time and type of tube. The speed should be at the rate of 1,400 to 1,500 r.p.m. for 10 minutes. While there may be more breakage when the pear shape tubes are used, they give a closer reading than the long tubes. A full description, together with the precautions to be observed, of this method are also found in Technical Paper 323-A, Page 70. Method 300 3.

CONDITION OF OIL IN CRANKCASE

Please advise if you know of a suitable test to determine the condition of oil in an automobile crankcase for the purpose of showing when the oil should be changed? The percentage of carbon or other foreign matter would be desired. Would the results from such a test vary with type of motor and temperature of the oil?—E. A. L.

The condition of the oil in the crankcase is often determined by the feel between the fingers, by the way it drops from a clean rod and its flow across a piece of clean glass. The appearance of a drop or two when viewed on glass will serve to indicate the quantity of metal, sand and carbon that may be present.

A slight modification of the sediment test by means of the centrifuge will furnish quantitative information. Equal parts of the oil and gasoline when centrifuged in a small hand machine will give a deposit in the bottom of the tube which may be measured by the graduations on the tube and easily converted to percentage by volume on the basis of the oil. If available, carbon tetrachloride or benzol may be used in place of the gasoline. Since the oil is diluted one-half by the solvent, it will be necessary to multiply the reading by the proper factor; by eight if the total volume is 25 cc., by four if it is 50 cc., etc. The percentage will represent the quantity of insoluble matter, and therefore objectionable, that is present in the oil.

The condition of the oil should be determined at room temperature, that is 60 to 70 degrees Fahrenheit. The type of motor cannot have anything to do with the determination.

CARBURETOR FOR SMALL ANTI-KNOCK ENGINE

On page 138 of the December 23, 1926, issue of The Oil and Gas Journal, Doctor Wilson states that he has devised a form of carburetor that gives a constant mixture ratio independent of the gravity of the fuel or the amount of throttle opening. Please explain the principles involved in devising a carburetor to function thus. Also give the method of analysis employed to insure a constant mixture ratio—L. F. H.

We understand that the carburetor used by Doctor Wilson was a Zenith model HB4P of the fixed jet and compensator type. The compensator jet is No. 70. A No. 90 main jet for this carburetor was fitted with a needle valve in order that adjustment of this orifice might be made without shutting down the engine. The carburetor was then made to give constant mixture ratio for a given setting of the needle valve, by trying out a series of experimental venturi chokes and testing them in actual operation. A particular venturi, scraped down to a throat diameter of 0.618 inch, was found to give very little deviation over the range from one-fifth to full throttle.

The air-fuel ratios are measured by using a low-pressure orifice meter on the air intake and measuring the rate of fuel supply with a pipette and stop watch. These results are, of course, checked by analyzing the exhaust gases by means of an Orsat apparatus. The relation between mixture ratio and exhaust gas analysis is brought out in a paper by A. C. Fieldner, Carburetor Adjustment by Gas Analysis, in the Journal Industrial and Engineering Chemistry, 14. 1922, and the use of orifices for measuring gas flow to engines, in a book by Arthur W. Judge, The Testing of High-Speed Internal Combustion Engines.

CONCRETE TANK FOR HOT OIL

A reinforced concrete tank 50 feet by 14 feet by 15 feet is being designed for the purpose of holding coal tar at 180 Fahrenheit. The tank is to project 5 feet above the ground making it difficult to handle condensate from the heating system economically. We wish to provide removable heating coils which may be removed for cleaning without draining the tank and would appreciate your suggestions.—L. S. H.

Coils may be set in the tank and when it is desired to remove them for cleaning, the aboveground connections may be broken, then the coils lifted by means of a chain or hook attachment.

If your exhaust steam is not under sufficient pressure to keep the coils clear, a steam jet or a pump set at the cooler end could be used for the purpose of removing the condensed liquid.

It has been demonstrated in the handling of crude, in much larger quantities than you have in mind, that concrete tanks should be free from sharp corners, preferably round with well depressed bottom, to prevent unequal expansion. The conditions are somewhat different for the storage of coal tar, because it is a self-sealing liquid.

Would it not be more economical to use a steel tank for the proposed service? The capacity of the tank mentioned would be about 1,500 bbls. and a steel tank of this size could be erected at a cost of approximately $1,500 to $2,000 depending upon location.

CRUDE OIL EMULSIONS OR B. S.

The mass of oil, water and sediment which is usually in a more or less emulsified condition, commonly called b.s., has no value yet often contains considerable oil. What is the cause for the formation of this emulsion; is there any way to prevent its formation and what are the best methods for treating it?—F. W.

The chief cause for the formation of crude oil emulsions is the water that becomes mixed with the oil. This water may come from the producing sand or flow into the producing area from some other level. The mere presence of water will not cause the emulsion to form, but if water is absent there will be no emulsion. It is the mechanical agitation of the mixture of oil and water, producing extensive division of the drops of water which is responsible. So long as the drops of water remain large there will be no permanent emulsion, but when the drops become very small, many of them microscopic, they may become coated with a film of wax or mineral matter, such as very minute crystals of salt, which will aid in keeping them in suspension and thus produce the emulsified oil.

In some cases when a well is producing some gas it is possible that the oil may become emulsified at the face of the sand, because of the atomizing action of the gas in the presence of small quantities of water. This condition is frequently caused when wells are pumped too low. As a rule the larger the ratio of water to oil the less will be the tendency to form emulsions. Fresh water, or water containing only small quantities of mineral matter, does not emulsify as readily as water containing large quantities of mineral matter.

The flowing of wells by means of gas or air often causes the formation of emulsions. The air or gas rising through the oil causes agitation. Poor pumping, including bad condition of the cups, rate, length of stroke, poor valves and movement of the working barrel, may be included in the mechanical condition which aid in forming emulsions.

The methods of prevention include correction of bad mechanical conditions and whenever possible getting rid of the contamination with water. Some operators have been successful in the use of separators.

It is the common practice to use a number of different methods for treating the emulsified oil; these include settling—frequently with the addition of water—heating in a settling tank, chemical processes, centrifugal machines, electrolytic processes and modified distillation. When very large quantities are to be treated slow running through pipe stills gives good results. Simple settling is not satisfactory except when there are only small quantities of the emulsion formed. The addition of chemicals, such as Tret-O-Lite, often accomplishes the desired result. The electrical process, Cottrell Process, operates on the theory that the small drops of water become charged, the film is broken, and larger drops are formed which settle to the bottom.

The United States Bureau of Mines has recently issued Bulletin 250, Oil Field Emulsions, which gives a thorough discussion of this subject, including many details of the different methods which are used for treating emulsions.

ANTI-FREEZE SOLUTIONS CAUSE CORROSION

I have used an anti-freeze solution containing lime and chromium which appears to have caused considerable corrosion. This solution was supposed to not permit corrosion because of the presence of the chromium and I would like to know if some other substance could have been present and caused the corrosion.—H. C. T.

The subject of anti-freeze solutions of salts was mentioned on this page in the issue of January 13, where you will find particular reference to solutions of calcium (lime) chloride containing chromium.

According to the Bureau of Standards, which has investigated a number of solutions which have been suggested for use in motor cooling systems, for the purpose of reducing the freezing point of the circulating water, practically all salt solutions cause appreciable corrosion, while solutions of organic materials, such as alcohol, glycerin and sugar, do not act on the metal surfaces any more than ordinary water does through the summer months.

While solutions of chromium, soluble chromates, may be prepared which will have a tendency to retard corrosion of some metals, they will act on the parts composed of aluminum. The alcohol mixtures are considered to be much the safer for this particular use.

Brief Items for Plant Operators

SHALE OIL AVAILABLE FOR EXPERIMENTAL USE

Shale oil obtained in the operation of the Federal Government's experimental oil shale plant near Rulison, Colo., is now available for distribution to laboratories interested in conducting tests with such oils, the Bureau of Mines announces. A Scottish type retort and an American type retort, known as the N-T-U, are now being operated at the experimental plant, and oils from both types of retort are available for investigative work. The Bureau of Mines is anxious to distribute this shale oil as widely as possible that studies may be conducted by universities, commercial laboratories, and laboratories of oil companies. No charge will be made for the oil, but the furnishing of samples is conditioned upon applicants agreeing to furnish the Bureau with the results of all studies and tests.

The Bureau of Mines has no funds for furnishing containers for this oil or paying for the cost of transporting the oil to the railroad, or for defraying costs of railroad transportation. It is necessary, therefore, for those desiring samples to furnish the containers and to pay all costs of transportation. As the work of furnishing samples will have to be conducted in connection with the operation of the plant, it is desired to limit the size of the samples to not less than 5 gallons, and shipments of not less than 1 drum will be preferable. The maximum amount of oil that can be supplied to any one applicant will be determined largely by the total amount of oil requested by all applicants.

The experimental oil shale plant is 1½ miles from Rulison Station, Garfield County, Colorado, on the main line of the Denver & Rio Grande Western Railroad. Applications for samples of shale oil should be addressed to M. J. Gavin, Engineer in Charge Oil Shale Investigations, United States Bureau of Mines, Rifle, Colo. Requests for samples should state whether oil is preferred from either the Scottish or the N-T-U retort or from both. The engineer in charge will arrange for transportation of containers between railroad and plant, and return of filled containers to applicants. Local haulage charges will be billed directly to applicants by local draymen. Freight charges on empty containers going to the plant must be prepaid. Filled containers will be returned to applicants by collect freight or express, as desired.

Those desiring samples are requested to submit applications as promptly as possible, so the bureau may have at an early date an idea of the total oil to be supplied, and how many applications are to be pro-rated. Applications should state the purpose for which the oil is desired and the Bureau reserves the right to reject any or all applications which do not evidence good faith.

W. E. PERDEW RESIGNS

W. E. Perdew, manager of the refinery of the Derby Oil Co., Wichita, Kans., has resigned effective March 1. Mr. Perdew has been in charge of the refinery operations of the Derby company since 1924. Mr. Perdew has not announced his future plans.

TO INSTALL CROSS UNIT

The Barber Asphalt Co. is preparing to install its first cracking unit at its Maurer, N. J., refinery. The operations of the plant in the past have been confined to skimming and the manufacture of asphalt. The cracking process to be installed is a 2,000-bbl. Cross unit.

Nigger Creek Crude Has Large Gasoline and Kerosene Yield

The crude petroleum being produced in the Nigger Creek Field of Limestone County, Texas, appears to be a typical intermediate base crude, according to an analysis of a sample, recently made by the Bureau of Mines. The crude oil has a gravity of 40 degrees A. P. I. and contains about one-fourth of 1 per cent of sulphur. It flows easily and has a brownish green color by reflected light. The crude is shown by the Bureau of Mines method of analysis and interpretation to contain about 37 per cent of gasoline of 62-63 A. P. I. gravity and about 12 per cent of 44 gravity kerosene. The presence of lubricating stocks is also indicated.

The sample analyzed by the Bureau of Mines was produced from the Woodbine sand at a depth of 2,840 feet. The well was producing 250 bbls. of oil per day when the sample was taken. The production of the Nigger Creek Field during December, 1926, was approximately 10,600 bbls. per day.

SUMMARY OF TEST

The approximate summary of the analysis of this crude is as follows:

	Per Cent	Specific Grav.	A.P.I.	Viscosity
Light gasoline (endpoint 212°F.)	12.2	.682	76.0	.....
Total gasoline and naphtha	36.9	.728	62.9	.....
Kerosene distillate	11.5	.804	44.5	.....
Gas oil	15.8	.849	35.2	.....
Nonviscous lubricating distillate	10.4	.867–.893	31.7–27.0	50–100
Medium lubricating distillate	6.8	.893–.917	27.0–22.8	100–200
Viscous lubricating distillate	...	.....	.....	Above 200
Residuum	18.6	.956	16.5	...
Distillation loss	8.0	.....	.....	.....

The detailed analysis of the sample of crude is as follows:

Sample No. 26586: Texas, Nigger Creek Field, Limestone County

Woodbine sand	2,840-42 ft.	Saybolt Universal viscosity at 70°F.	42 sec.
Specific gravity	.825	Pour point	Below 5°F.
A. P. I. gavity	40.0°	Saybolt Universal viscosity at 100°F.	42 sec.
Per cent sulphur	.27	Color	Brownish green
Per cent water	Nil		

Distillation Test

Bureau of Mines—Hempel Method

Air distillation. Barometer, 749 mm. First drop: 33°C. (91°F.)

Temperature °C.	Per Cent Cut	Sum per Cent	Sp. Gr. of Cut	A. P. I. of Cut	Vis. at 100°F.	Cloud Test, °F.	Temperature °F.
Up to 50	2.7	2.7	....	....	...	...	Up to 122
50 to 75	2.1	4.8	.662	82.2	...	...	122 to 167
75 to 100	7.4	12.2	.695	72.1	...	...	167 to 212
100 to 125	5.7	17.9	.723	64.2	...	...	212 to 257
125 to 150	7.2	25.1	.742	59.2	...	...	257 to 302
150 to 175	5.8	30.9	.762	54.2	...	...	302 to 347
175 to 200	6.0	36.9	.778	50.4	...	...	347 to 392
200 to 225	5.1	42.0	.795	46.5	...	...	392 to 437
225 to 250	6.4	48.4	.812	42.8	...	...	437 to 482
250 to 275	6.3	54.7	.830	39.0	...	...	482 to 527

Vacuum Distillation at 40 mm.

Up to 200	4.9	4.9	.859	33.2	42	20	Up to 392
200 to 225	7.3	12.2	.864	32.3	48	45	392 to 437
225 to 250	5.2	17.4	.883	28.8	65	60	437 to 482
250 to 275	4.5	21.9	.892	27.1	97	78	482 to 527
275 to 300	4.8	26.7	.909	24.2	193	92	527 to 572
Residuum, per cent	18.6			Distillation loss			Nil
Carbon residue of residuum, per cent	8.6			Carbon residue of crude, per cent			1.6

AMONG THE TECHNICAL MEN

F. N. Williams, superintendent of the Gas Center (Shreveport, La.) refinery of the Louisiana Oil Refining Corp., although one of the youngest plant operators in the Mid-Continent Field, has had many years of experience in refinery operation. He has spent 19 years in the refining business, all of which has been in the operating end.

F. N. Williams

Mr. Williams' first employment was with the old Security Oil Co.'s refinery at Beaumont, Tex., (now Magnolia company.) He was employed at the plant for four years, gaining a working knowledge of all phases of plant operations.

In 1911, he was associated with the Gulf Refining Co., at the Port Arthur, Tex., plant and after a year there he returned to the Magnolia company's plant at Dallas, Tex., and was there until 1919. During that year he was sent to Boston, Mass., as construction superintendent of the Massachusetts Oil Refining Co.'s plant. Upon completion of the plant he was made superintendent.

Later he returned to Texas and opened offices in Houston, as a consulting engineer. While there he wrote several technical papers dealing with various phases of refining. In 1923, he was in charge of construction of the Texas Pacific Coal & Oil Co.'s refinery at Wynnewood, Okla. Following completion of that plant he went to Shreveport, La., as superintendent at the Louisiana corporation's plant at Gas Center.

Mr. Williams was born 34 years ago in Capetown, South Africa, where his father was serving with the English army. He came to the United States two years later with his parents. He is a member of the British Institute of Petroleum Technologists, Fellow of Royal Society of Arts and several other technical organizations.

EMPIRE REFINERIES, INC. LICENSE DUBBS PROCESS

The Empire Refineries, Inc., of Tulsa, Okla., has closed a contract with the Universal Oil Products of Chicago, covering the licensing of four Dubbs cracking units, according to an announcement by the Universal company. Two of the units will be installed at the Gainesville, Tex., refinery of the Empire and two at the Ponca City, Okla., refinery. Each of the units will have a capacity of 1,500 bbls. daily.

The Empire Refineries, Inc., in the past has operated Doherty cracking units, a process which was developed by a subsidiary research organization of the Henry L. Doherty interests to which the Empire company also belongs. Units of this process are in operation at the Gainesville and Ponca City refineries as well as the Cushing and Okmulgee, Okla., plants of the company.

The operation of this process was the basis of a suit filed last year by the Universal Oil Products Co. against the Empire Refineries, Inc., the plaintiff alleging that the Doherty process infringed several of the patents owned by the Universal company. The suit has never been brought to trial but is still pending. It is understood that the licensing of the Dubbs process by the Empire organization will not effect the status of the suit between the two companies. The Empire company will continue to operate its Doherty units.

REFINERY AT FAWLEY TO HAVE CROSS UNITS

The Standard Oil Co. of New Jersey has contracted with the M. W. Kellogg Co. for two 2,000-bbl. cracking units to be installed at a refinery located at Fawley, England.

It has also been announced that the two Cross units which were to be built at the new refinery of Humble Oil & Refining Co. at Amarillo, Tex., will be installed at the Baytown, Tex., refinery of the Humble company. The latter company has postponed indefinitely all its plans in connection with the building of a refinery at Amarillo.

TO INSTALL DUBBS UNIT

The Aquila Franco-Romano has contracted with the Universal Oil Products Co. for the installation of one Dubbs cracking unit. The unit, which will have a capacity of 800 bbls. daily, will be installed at the refinery located at Ploesti, Rumania.

Recent Patents

(Additional Patents on Page 162)

1,614,930. Conversion of Hydrocarbon Liquids. Auguste Jean Paris, Jr., Bradford, Pa. Filed May 14, 1924. Serial No. 713,230. 12 Claims. (Cl. 196—47.)

1. A process of treating liquid petroleum hydrocarbons for the production of lower boiling liquid hydrocarbons which comprises preliminarily distilling the petroleum hydrocarbons and subjecting the distillate to temperature and pressure appropriate to convert it into lower boiling hydrocarbons while limiting the boiling range of the fraction subjected to conversion at any given instant to less than about 100 degrees Fahrenheit.

Oil Securities Active but Irregular

Tendency of Most Issues to Ease Off a Little But Net Changes During Week Were Small

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church Street, New York City

NEW YORK, Feb. 21.—Oil securities were active and irregular during the past week. The tendency of most issues was to slide off a little but the net changes for the week were small.

Big Production of Oil

Doubtless the increasing production of crude oil is the overshadowing element in the movements of petroleum securities at the present time. It is felt in many quarters that the increase in Seminole may bring general price cuts throughout the industry, and that any degree of future recovery will depend upon a reversal of the domestic production trend.

Nevertheless, some oil issues continue firm or strong, and there are still some who do not take a deeply pessimistic view of the situation as a whole. Those who are inclined to any optimism are basing their hopes on the rate of consumption of oil, but they admit they do not know just what the consumption now is as related to current production.

There is always the underlying factor of a change in the direction of the production curve. While oil fields increase their output rapidly, there has always been a point at which the flush output has declined. When the point will be reached in Seminole no one seems to know just now. Hence, the existing situation is apparently one of uncertainty.

Buying of some oil securities under present circumstances is probably based on special favorable developments in certain companies, together with the belief always present in the breast of some that, sooner or later, there will be a boom in oil stocks.

North American Consolidated

The North American Oil Consolidated Co. of California reports for the year ended December 31, 1926, gross earnings of $3,271,624 and net profit after taxes, depreciation and depletion of $1,592,650. The balance sheet as of December 31, last, shows total assets of $4,998,874, current assets of $1,161,104, and current liabilities of $160,640.

Northern Pipe Line

The report of the Northern Pipe Line Co. for the year ended December 31, 1926, shows net income of $374,906 after depreciation and taxes, equivalent to $9.37 a share earned on $4,000,000 capital stock. This company with $310,748.04 or $7.76 a share, in 1925.

The statement for 1926 compares with 1925 as follows:

	1926	1925
Net income	$374,906	$310,748
Dividends	320,000	240,000
Surplus	$ 54,906	$ 70,748
P. & L. Surplus	234,772	245,866

The balance sheet of the Northern Pipe Line Co. as of December 31, 1926, compares with that of 1925 as follows:

Assets

	1926	1925
Plant	$3,072,730	$3,015,664
Materials and supplies	32,711	28,973
Cash, etc.	3,489,227	3,351,706
Total	$6,594,668	$6,396,343

Liabilities

Capital stock	$4,000,000	$4,000,000
*Accounts payable	606,331	488,067
Depreciation reserve	1,753,564	1,653,410
Surplus	234,773	254,866
Total	$6,594,668	$6,396,343

*Includes taxes and fire insurance reserves.

Superior Oil

The Superior Oil Corp. shows net profit, as compared from quarterly reports, for the year 1926 of $75,851 after interest, depreciation and depletion, equivalent to 6 cents a share on the 1,102,238 shares of no par value stock. This compares with net loss of $737,862 in 1925.

The income account for 1926, compiled from quarterly reports, compares with 1925 as follows:

	*1926	1925
Gross income	$2,080,457	$1,291,317
Exp., int., depr., depl.	2,004,606	2,029,179
Net profit	$ 75,851	$ †737,862

*Subject to year end adjustments. †Loss.

Union Oil of California

The report of the Union Oil Co. of California and owned companies for the year ended December 31, 1927, shows net profit of $11,831,618 after interest, Federal taxes, depreciation and depletion, equivalent to $3.12 a share (par $25) earned on 3,788,618 shares of stock. This compares with $10,513,206 or $2.78 a share, on 3,780,249 shares in 1925.

The consolidated income account for 1926 compares as follows:

	1926	1925
Operating profit	$29,457,978	$27,082,278
Expenses, taxes, etc.	4,621,849	4,392,098
Net earnings	$24,836,129	$22,690,180
Interest	760,015	736,649
Depr., depletion, etc.	12,244,496	11,440,325
Net profit	$11,831,618	$10,513,206

The consolidated balance sheet of the Union Oil Co. of California and owned companies, as of December 31, 1926, compares as follows:

Assets

	1926	1925
Properties	$268,541,107	$187,218,562
Investments, etc.	715,399	997,925
United States, sec.	10,200,000	7,000,000
Cash	8,406,943	6,893,349
Bills, accts. rec.	8,658,422	7,002,563
Empl. stock subscr.	244,372	579,003
Inventories	28,814,709	33,527,098
Deferred charges	545,271	598,175
Total	$326,126,229	$243,816,675

Liabilities

Capital stock	$ 94,716,450	$ 94,506,225
Bonds	22,757,500	14,100,500
Purch. money oblig.	.....	495,822
Empl. stock subscr.	290,625	514,225
Accounts payable	5,406,217	4,677,317
Accrued interest	347,008	353,424
Tax reserves, etc.	3,837,218	3,066,250
Drlg. and cont. res.	23,277,806	.....
Depl. reserve	68,493,720	45,942,826
Depr. reserve	40,532,978	38,460,484
Surplus	19,249,805	15,789,975
Apprec. surplus	47,217,902	15,909,627
Total	$326,126,229	$243,816,675

Lion Oil Refining

The Lion Oil Refining Co. reports net earnings for the year ended December 31, 1926, of $2,452,952, before depreciation, depletion and Federal taxes, comparing with $2,277,089 in the preceding year.

Net earnings in January, 1927, were $228,678, before depreciation, depletion and Federal taxes, compared with $189,821 in January, 1926.

Sun Oil

The Sun Oil Co. reports for year ended December 31, 1926, net income of $3,358,899 after interest, depreciation, depletion and Federal taxes, equivalent to $2.86 a share earned on 1,171,145 no par value shares of stock. This compares with $3,602,128, or $3.27 a share, on 1,099,776 shares in 1925.

The income account for 1926 compares with 1925, as follows:

	1926	1925
Gross income	$50,797,798	$48,697,402
Expenses, etc.	45,209,063	42,751,625
Operating income	$ 5,588,735	$ 5,945,777
Other income	1,499,797	775,646
Total income	$ 7,088,532	$ 6,721,423
Interest	552,330	675,821
Deprec. and depl.	2,785,303	2,099,439
Federal taxes	392,000	344,035
Net income	$ 3,358,899	$ 3,602,128
Dividends	1,100,375	836,996
Surplus	$2 258,524	$ 2,765,132

New York Transit

The New York Transit Co. for the year ended December 31, 1926, reports net income of $160,066 after taxes and depreciation, equivalent to $2.12 a share earned on $5,000,000 capital stock. This compares with $243,792, or $4.87 a share, in 1925.

The income account for 1926 compares with 1925 as follows:

	1926	1925
Net income	$ 106,066	$ 243,792
Dividends	112,500	150,000
Deficit	$ 6,434	$ *93,792
P. & L. surplus	1,343,572	1,350,006

*Surplus.

The balance sheet of the New York Transit Co. as of December 31, 1926, compares as follows:

Assets

	1926	1925
Plant	$6,652,493	$6,972,229
Material and supplies	53,433	72,772
Cash, accts. recv., etc.	2,720,298	2,486,920
Total	$9,426,224	$9,531,921

Liabilities

Capital stock	$5,000,000	$5,000,000
*Accounts payable	740,569	838,819
Deprec. reserve	2,342,083	2,343,096
Surplus	1,343,572	1,350,006
Total	$9,426,224	$9,531,921

*Includes reserve for taxes and insurance.

Simms Petroleum

Simms Petroleum Co.'s net profit for the last quarter of 1926 is estimated to have been better than $1 a share on the 686,283 shares of stock, after all deductions, including the usual charge of drilling costs to operating expenses.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. Feb.21	Clos. Quot. Feb.14	1926 High	1926 Low	1925 High	1925 Low	1924 High	1924 Low
Amerada Corp.	..	34⅝	37	32⅞	24⅜	..	..	..	..
Atlantic Ref., com.	100	111¾	114	128⅝	87	117½	95½	140½	78½
Barnsdall "A"	25	33	33¼	32½	23½	33½	18¾	29½	14
California Pet., com.	25	30⅜	31¼	38⅛	30⅞	34⅜	23⅜	29	19⅞
Houston Oil	100	85⅝	86	76	50¼	85	59	82½	61
Independent Oil & Gas	..	30⅛	31⅛	34	20¼	41⅜	13½	16¼	5⅜
Louisiana Oil	10	15⅝	15⅞	19⅝	12	23¾	13⅝	..	..
Maracaibo	..	19	20	27⅞	18⅝	35½	20⅝	37¼	25⅜
Marland	..	57	57⅝	63⅝	49¼	60½	32⅝	42	29
Mid-Continent Pet.	..	35½	37⅝	41	25⅝	38	25⅝	40¼	22⅝
National Supply	50	93⅛	92½	84⅞	55½	71	54⅝	72½	54
Oil Well Supply	25	36½	36¼	36	30	38	33⅜	..	..
Pan. Amer., B	50	63¾	64½	72⅜	56⅛	83⅞	59½	65	44½
Pan. Amer., Western B	..	35½	35⅝	46	34	49⅝	37¼	..	..
Phillips Pet.	..	58½	58¾	54⅞	42½	47⅛	36¼	52¼	28½
Producers & Refiners	50	27	30⅜	26	11	32⅝	12½	32½	29⅜
Pure Oil, com.	..	30½	29¼	31	25⅝	33⅜	25¼	30¼	20
Royal Dutch, N. Y., sh.	13.40	51⅞	52½	57⅝	45⅝	57⅝	48¼	59½	40⅝
Shell Transport	10	*46	*47	48⅞	42	49	39⅜	42	33
Shell Union, com.	..	30⅞	31⅝	30⅞	24	28⅝	21⅝	22½	15⅜
Simms Pet.	10	22	22	28⅝	16½	28½	17⅜	24	10⅝
Sinclair Consolidated	..	21¼	21⅜	24⅞	16⅜	24⅞	17	17½	15
Skelly Oil	25	37	35⅞	37⅛	27	32½	21⅜	29	17½
Standard of California	25	58¼	59⅜	63½	54	67¼	52½	68½	55½
Standard of New Jersey, com.	25	38⅞	39⅝	46⅝	37½	47½	38⅝	42½	33
Standard of New York	25	32½	33½	47¼	30⅝	48⅝	40	48	37⅜
Sun Oil Co.	..	33	*35	41⅝	30½	43⅞	38½	..	..
The Texas Company	25	56⅝	57	58	48	55	42⅝	45⅝	37⅝
Texas Pacific Coal & Oil	10	15⅝	15⅝	19½	12½	23⅜	11	15½	8¼
Tide Water Oil	25	28	*28	39¼	27	..	..	..	..
Transcontinental	..	4⅜	5	5½	3	5⅝	3½	6½	3⅜
Union Oil of California	25	52½	53½	58⅜	37½	43⅝	33½	30	35½
Union Tank, com.	100	*97⅜	97⅜	120⅜	84½	†134	118	132½	94
White Eagle Oil & Refining Co.	..	26⅝	26⅝	29⅜	25⅛	31⅜	25⅝	29⅞	23⅛
Standard Oils									
Anglo-American Oil	£1	20⅞	21	19⅜	16½	26⅜	17½	18¾	14⅝
Borne Scrymser	25	*64	69	75	65	‡240	205	164	150
Buckeye Pipe Line	50	*47	*46	59½	47⅝	72	63½	85½	51
Chesebrough Mfg. Co.	25	*81	*80	81½	63	74	48¾	62½	29¼
Continental	10	20⅜	21½	25⅞	19¼	31½	21⅞	..	..
Cumberland Pipe Line	100	128½	127½	137	102	156	128	148	108
Eureka Pipe Line	100	*49	49½	53⅜	43	96	61¼	105	74
Galena Signal com.	100	*12½	*13¼	32½	9⅞	68½	23½	69⅜	62½
Humble Oil & Refining Co.	25	57¼	60	68⅛	52	99	42½	43⅜	36
Illinois Pipe Line	100	134½	138½	144	131	154½	124	161	123
Imperial Oil, Ltd.	..	44¼	44⅞	42	32½	39¼	27¼	119	99
Indiana Pipe Line	50	*67	68	68	52¼	84	87½	100	66
International Pet. Co.	10	33	34½	35¼	28⅜	25⅝	22⅝	34⅜	16⅞
National Transit Co.	12.50	13⅝	13⅜	20⅜	27¼	25½	16½	25⅝	26⅝
New York Transit	100	*33	*33	51½	27½	79	50	97	51½
Northern Pipe Line	100	79	*76	80½	64	88	67½	107½	72
Ohio Oil Co.	25	61	63½	67⅝	55⅜	75¼	60	78½	53
Penn-Mex Fuel	25	*16	*17½	24½	15	44	19	35⅝	27
Prairie Oil & Gas	25	52⅜	54	60¼	48	65½	45⅞	269	193
Prairie Pipe Line	100	140⅝	146	137½	122½	129⅝	105	111	100
Solar Refining Co.	100	197	200½	212	184½	259	200	240	170
South Penn Oil	25	38	*38¼	50	35	‡197	139	176	117
Southwest Pa. Line	100	58½	*57⅝	56	47½	84	50	89	68
Southern Pipe Line	50	16	*16	27	24	‡103	63	100	80½
Standard of Indiana	25	71	71½	70½	61⅝	70⅝	69½	69⅝	64⅛
Standard of Kansas	25	18⅜	19¼	36½	16½	46	30½	50½	32½
Standard of Kentucky	25	119½	119⅜	134⅝	108	137	114⅝	121¾	101
Standard of Nebraska	25	48½	49	51⅛	42	‡270	231	262	198
Standard of Ohio, com.	100	*335	345	362	192½	369	338	337½	277
Swan & Finch, com.	25	*15	*15	21	18	27	12	28	20
Vacuum Oil	25	102	102	109⅜	94¼	109½	80½	83½	50½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	94½	94½	95	82½	98¼	63½	67⅜	56
Tidewater Associated	..	22¾	22½	27	21	..	..	..	..

*Bid, no sales. ‡Old stock. †New stock.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Feb. 21	60.26	Jan. 17	60.38	Dec. 13	57.90
Feb. 14	61.13	Jan. 10	59.42	Dec. 6	58.02
Feb. 7	60.51	Jan. 3	58.94	Nov. 29	57.09
Jan. 31	60.09	Dec. 27	60.22	Nov. 22	57.09
Jan. 24	59.89	Dec. 20	59.19	Nov. 15	57.67

PENNSYLVANIA TESTS DELAYED BY MISHAPS

OIL CITY, Pa., Feb. 19.—The three deep tests in northwestern Pennsylvania are now all held up on account of accidents. There has been little change in the Lamont well of the United Natural Gas Co. near Kane since November 16, when a pocket of gas was struck at 5,402 feet, blowing the tools up in the casing. The 10-inch bit was stuck in the hole, and the workers are still fishing for it.

The Tidioute deep well of the Fidelity Petroleum Co. is at 5,075 feet, and fishing to recover a bailer stuck in the casing at 3,000 feet.

At the Deemer deep well in Jefferson County, a cavein is being cemented, and the operation is shut down. The approximate depth is 7,050 feet.

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	Feb. 22		Feb. 15		Feb. 8	
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.08	.08¼	.08⅝	.08¾	.08⅝	.08⅞
56-58 450 end point	.08		.08⅝	.08½	.08⅜	.08½
58-60 450 end point	.08	.08⅛	.08½		.08½	
58-60 437 end point (U. S. Motor)	.08	.08½	.08½	.08¾	.08½	.09
60-62 400 end point	.08¾	.09	.09⅛	.09¼	.09⅜	.09⅝
64-66 375 end point	.09½	.09¾	.10	.10¼	.10¼	.10½
68-70 360 end point	.10	.10½	.10⅞	.11	.11	.11¼
64-66 437 end point (blend)	.08	.08¼	.08½		.08½	.08¾
KANSAS—						
58-60 437 end point (U. S. Motor)	.08¾	.09	.09	.09⅛	.09	.09⅛
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.08	.08¼	.08¼		.08½	.08¾
56-58 450 end point	.08⅛	.08¼	.08¼	.08⅜	.08¼	.08½
58-60 437 end point (U. S. Motor)	.08¼	.08¾	.08⅝	.08¾	.08⅝	.09
60-62 400 end point	.08¾	.09	.09	.09⅛	.09¼	.09½
64-66 390 end point	.09¼	.09½	.09¾	.10	.09⅞	.10
64-66 375 end point	.09½	.09¾	.10		.10⅛	.10⅜
68-70 360 end point	.10¼	.10½	.10¾		.11	
64-66 437 end point (blend)	.08	.08¼	.08¼	.08⅜	.08½	.08¾
NORTH LOUISIANA—						
58-60 437 end point (U. S. Motor)	.08½	.09	.09		.09	
ARKANSAS—						
58-60 437 end point (U. S. Motor)	.08½	.08¾	.09		.09	
PENNSYLVANIA—						
52-54 Naphtha	.11½	.11¾	.11½	.11¾	.11½	.11¾
54-56 Naphtha	.11½	.11¾	.11½	.11¾	.11½	.11¾
58-60 Gasoline	.11½	.11¾	.11½	.11¾	.11½	.11¾
60 Gasoline	.12½	.12¾	.12½	.12¾	.12½	.12¾
62 Gasoline	.13	.13¼	.13	.13¼	.13	.13¼
64 Gasoline	.13¼	.13½	.13¼	.13½	.13¼	.13½
66 Gasoline	.16½	.17	.16½	.17	.16½	.17
68-70 Gasoline	.17½	.18	.17½	.18	.17½	.18
CALIFORNIA—						
58-60 437 end point (U. S. Motor) domestic	.10½	.11	.10½	.11	.10½	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Nahptha)	.08	.08¼	.08¾	.09	.08⅞	.09
56-58 450 end point	.08		.08½		.08½	.08⅝
58-60 437 end point (U. S. Motor)	.08	.08¼	.08½	.09	.08⅝	.09
60-62 400 end point	.09		.09⅜	.09½	.09½	.09¾
64-66 375 end point	.09¾	.10	.10⅛	.10⅜	.10⅜	.10⅝
68-70 360 end point	.10¼	.10½	.11	.11⅛	.11	.11¼
64-66 437 end point (blend)	.08	.08¼	.09	.09⅛	.08¾	.09

NATURAL GASOLINE

	Feb. 22		Feb. 15		Feb. 8	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½	.06¾	.06¾	.07	.07¼	.07⅜
Grade A, 72-79.9, 375 e.p., rec. 90%	.07	.07¼	.07½		.07¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.06		.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾	.06	.06⅜	.06½	.06¾	
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.05⅝	.05⅞	.06¼	
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½	.06¾	.07		.07¼	.07½
Grade A, 72-79.9, 375 e.p., rec. 90%	.07	.07¼	.07½	.07⅝	.07¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.06	.06⅛	.06¼	.06½
Grade B, 76-83.9, 375 e.p., rec. 85%	.05¾	.06	.06½		.06⅝	.07
Grade C, 80-90, 375 e.p., rec. 78%	.05¼		.05¾		.06¼	.06½
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.07⅜	.07⅝	.07⅜	.08⅛	.08¼	.08½
Grade B, 76-83.9, 375 e.p., rec. 85%	.06⅜	.06⅞	.07	.07¼	.07¼	.07½
Grade C, 80-90, 375 e.p., rec. 78%	.06¼	.06½	.06¾		.06¾	.07
CALIFORNIA—						
75-86, 375-390 end point	.12½	.13½	.12½	.13½	.12½	.13½
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.06½	.06¾	.07⅜	.08	.07½	.07¾
Grade A, 72-79.9, 375 e.p., rec. 90%	.07	.07¼	.07¼	.07½	.07½	.07¾
Grade BB, 84-92, 375 e.p., rec. 85%	.05½	.05¾	.06¾		.07	.07¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.06		.06½	.06⅝	.07	.07¼
Grade C, 80-90, 375 e.p., rec. 78%	.05	.05¼	.06⅜	.06½	.06½	

BURNING OIL

	Feb. 22		Feb. 15		Feb. 8	
KANSAS—						
41-43 water white Kerosene	.06¼	.06½	.06⅜	.06½	.06⅜	.06½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.06	.06¼	.06¼	.06¼	.06	.06¼
42-44 water white Kerosene	.06⅜	.06¾	.06¾		.06½	.06¾
NORTH LOUISIANA—						
41-43 prime white Kerosene	.06¼		.06½	.06¾	.06½	.06¾
NORTH TEXAS—						
41-43 water white Kerosene	.06	.06¼	.06	.06¼	.06	.06⅛
ARKANSAS—						
41-43 water white Kerosene	.06½	.06¾	.06½	.06¾	.06½	.06¾
PENNSYLVANIA—						
43 Kerosene prime white	.07⅜	.07½	.07¾	.08	.07¾	.08
45 Kerosene water white	.07½	.07¾	.07¾	.68	.08	.08¼
46 Kerosene water white	.08¼	.08½	.08¼	.08½	.08¼	.08½
47 Kerosene water white	.08¾	.09	.08¾	.09	.08¾	.09
300 Mineral Seal	.08½	.08¾	.08½	.08¾	.08½	.08¾
CALIFORNIA—						
38-40 water white (high burning test)	.07	.07½	.07	.07½	.07	.07½
Engine distillate, 43-45 445 end point	.07¾	.08	.07¾	.08	.07¾	.08
Engine distillate, 42-44 480 end point	.07¼	.07½	.07¼	.07½	.07¼	.07½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white Kerosene	.06	.06¼	.06¼	.06¼	.06¼	.06¼
42-44 water white Kerosene	.06¾		.06½	.06¾	.06½	.06¾

FUEL OILS

	Feb. 22		Feb. 15		Feb. 8	
KANSAS—						
24-26 Fuel Oil	1.45	1.50	1.45	1.50	1.40	1.50
32-36 Gas Oil	.04¼	.04½	.04¼	.04½	.04¾	.04½
38-40 Distillate	.05	.05¼	.05	.05¼	.05	.05¼
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.15	1.20	1.15	1.20	1.15	1.17½
22-26 Fuel Oil (sellers' cars)	1.20	1.22½	1.20	1.22½	1.20	1.22½
24-26 Fuel Oil (sellers' cars)	1.25	1.30	1.25	1.30	1.25	
26-30 Fuel Oil (sellers' cars)	1.32½	1.35	1.30	1.35	1.30	1.35
28-30 Fuel Oil (sellers' cars)	1.45	1.50	1.45	1.50	1.45	1.50
32-36 Gas Oil (dark)	.04¼	.04⅜	.04¼	.04⅜	.04¼	.04⅜
32-36 Gas Oil (straw overhead)	.04⅜	.04½	.04½	.04⅝	.04½	.04⅝
36-38 Distillate	.04½		.04⅝	.04¾	.04¾	.04⅞
38-40 Straw Distillate	.04½	.04¾	.04¾	.05	.04⅞	.05
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.55	1.57½	1.55	1.60	1.55	1.60
32-36 Gas Oil (straw)	.04¼	.04⅜	.04¼	.04⅜	.04¼	.04⅜
38-40 Straw Distillate	.04½	.04⅝	.04¾	.04⅞	.04¾	.04⅞
NORTH LOUISIANA—						
18-20 Fuel Oil	1.30	1.35	1.30	1.35	1.30	1.35
32-36 Gas Oil (straw)	.04⅜	.04½	.04½	.04¾	.04½	.04⅜
32-36 Gas Oil (dark)	.04¼	.04⅜	.04¼	.04½	.04¼	.04½
36-38 Distillate	.04⅝	.04⅞	.04⅞	.05	.04⅞	.05
ARKANSAS—						
36-38 Distillate	.04⅝	.04⅞	.04⅞	.05	.04⅞	.05
32-36 Gas Oil (straw)	.04¼	.04⅝	.04¼	.04⅝	.04¼	.04⅝
16-20 Refinery Fuel Oil	1.25	1.30	1.25		1.25	
GULF COAST (South Texas)—						
Gas Oil	.05½	.05⅝	.05½	.05⅝	.05½	.05⅝
Fuel Oil	1.75	1.85	1.75	1.85	1.75	1.85
PENNSYLVANIA—						
30-34 Fuel Oil	.06	.06¼	.06	.06¼	.06	.06¼
36-40 Fuel Oil	.06¼	.06½	.06¼	.06⅜	.06¼	.06⅜
CALIFORNIA—						
33-36 Distillate	.04	.04¾	.04	.04¾	.04	.04¾
27-32 Distillate	.03½	.04	.03½	.04	.03½	.04
15-20 Fuel Oil, Bunkers (at tide water)	.92½	1.04	.92½	1.04	.92½	1.04
15-20 Fuel Oil (cargo lots)	.82½	.87½	.82½	.87½	.82½	.87½
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	1.25	1.30	1.25	1.30	1.27½	1.30
22-26 Fuel Oil (sellers' cars) Group 3	1.20	1.25	1.20	1.25	1.25	1.27½
18-22 (Group 3)	1.20	1.22½	1.17½	1.20	1.20	1.22½
18-20 (Smackover)	1.25	1.30	1.25	1.30	1.25	1.30
32-36 Gas Oil (zero)	.04½	.04¾	.04½	.04⅞	.04½	.04¾
32-36 Gas Oil (industrial)	.04¼		.04⅛	.04¼	.04⅛	.04¼
36-38 Distillate	.04½	.04⅝	.04⅝	.04¾	.04¾	.05
38-40 Straw Distillate	.04¾	.05	.04¾	.05	.05	.05¼

LUBRICATING OILS AND WAX

	Feb. 22		Feb. 15		Feb. 8	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06¾	.07	.06¾	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
150 vis., 4 color, 20-25 cold test	.09½	.09¾	.09½	.09¾	.09½	.09¾
180 vis., 3 color, 23-28 cold test	.10	.11	.10	.11	.10	.11
180 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 3 color, 23-28 cold test	.10¾	.11¾	.10¾	.11¾	.10¾	.11¾
200 vis., 4 color, 23-28 cold test	.11¼	.11½	.11	.11½	.11	.11½
200 vis., 5 color, 23-28 cold test	.10½	.11¼	.10½	.11¼	.10½	.11¼
220 vis., 3 color, 25-30 cold test	.12½	.13½	.12½	.13½	.12½	.13½
220 vis., 4 color, 25-30 cold test	.12	.13	.12	.13	.12	.13
220 vis., 5 color, 25-30 cold test	.12	.12¼	.12	.12¼	.12	.12¼
240 vis., 3 color, 25-30 cold test	.14	.15	.14	.15	.14	.15
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 5 color, 25-30 cold test	.13	.14	.13	.14	.13	.14
820 vis., 3 color, 25-30 cold test	.16	.17	.16	.17	.16	.17
280 vis., 4 color, 25-30 cold test	.15½	.16½	.15½	.16½	.15½	.16½
280 vis., 5 color, 25-30 cold test	.15	.16	.15	.16	.15	.16
Cylinder Stocks:						
600, steam refined, light green	.08½	.11	.08½	.11	.08½	.11
600, steam refined, dark green	.06	.07	.06	.07	.06	.07
190-200 vis. @ 210 Bright Stock	.31	.35	.31	.35	.31	.35
150-160 vis. @ 210 Bright Stock	.27	.31	.27		.27	
Waxes:						
124-126 White Crude Scale Wax	.04¼		.04	.04¼	.04¼	
PENNSYLVANIA—						
34 Neutral	.07½	.07¾	.07½	.07¾	.07½	.07¾
34 Sundebloom Neutral	.08½	.08¾	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
150, 3 color	.28¼	.28½	.28¼	.28½	.28¼	.28½
180, 3 color	.29¾	.30	.29¾	.30	.29¾	.30
200, 3 color	.32½	.32¾	.32½	.32¾	.32½	.32¾
220, 3 color	.34¼	.34½	.34¼	.34½	.34¼	.34½
600, steam refined	.12	.12¼	.12	.12¼	.12	.12¼
635, steam refined	.15¼	.15½	.15¼	.15½	.15¼	.15½
650, steam refined	.16¼	.16½	.16¼	.16½	.16¼	.16½
600, Pennsylvania flash	.20¾	.21	.20¾	.21	.20¾	.21
630, Pennsylvania flash	.30¼	.30½	.30¼	.30½	.30¼	.30½
*550, E filtered	.18½	.19	.18½	.19	.18½	.19
*600, E filtered	.20	.20½	.20	.20½	.20	.20½
600, E filtered	.18	.18½	.18½	.19	.18½	.19
600, D filtered	.25½	.26	.25½	.26	.25½	.26
550, E filtered	.17½	.18	.17½	.18	.17½	.18
550, D filtered	.21½	.22	.21½	.22	.21½	.22
Pennsylvania Bright Stock	.37		.37		.37	
122-124 White Crude Scale Wax	.04½	.04¾	.04½	.04¾	.04½	.04¾
†124-126 White Crude Scale Wax	.04½	.04¾	.04½	.04¾	.04½	.04¾

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—							
No. 2	color, 100 vis., pale oil	.08	.09	.08	.09	.08	.09
No. 3	color, 200 vis, pale oil	.11	.12	.11	.12	.11	.12
No. 3½	color, 300 vis., pale oil	.12	.13	.12	.13	.12	.13
No. 3¾	color, 500 vis., pale oil	.14	.15	.14	.15	.14	.15
No. 4	color, 750 vis, pale oil	.16	.17	.17	.18	.17	.18

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

No. 5 to 6 color, 200 vis., red oil	.09	.10	.09	.10	.09	.10
No. 5 to 6 color, 300 vis., red oil	.10	.11	.10	.11	.10	.11
No. 5 to 6 color, 500 vis., red oil	.12	.13	.12	.13	.12	.13
No. 5 to 6 color, 750 vis., red oil	.15	.16	.15	.16	.15	.16
CALIFORNIA—						
130 vis., 2½-3 color	.10	.10½	.10	.10½	.10	.10½
200 vis., 2½-3 color	.10½	.11	.10½	.11	.10½	.11
300 vis., 3 -3½ color	.11	.11½	.11	.11½	.11	.11½
350 vis., 3½-4 color	.11	.11½	.11	.11½	.11	.11½
400 vis., 3½-4 color	.12½	.13	.12½	.13	.12½	.13
Red Neutral:						
200 vis., 4½-5 color	.09	.09½	.09	.09½	.09	.09½
300 vis., 5 -6 color	.09½	.10	.09½	.10	.09½	.10
400 vis., 5 -6 color	.11½	12	.11½	.12	.11½	.12
500 vis., 4½-5 color	.12	.13½	.12	.13½	.12	.13½
500 vis., 5 -6½ color	.12	.12½	.12	.12½	.12	.12½
600 vis., 6½ plus color	.12½	.13	.12½	.13	.12½	.13

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Feb. 22	Feb. 15	Feb. 8
Gasoline, U. S. Motor, 58-60 437	.13	.12¼	.12¼
Kerosene, water white, 41-43	.09	.09	.08¾
*Fuel Oil, bunker "C," 14-16, per bbl.	1.75	1.75	1.75
*Fuel Oil, Diesel, 28-30, per bbl.	2.40	2.40	2.40
Gas Oil, 28 plus	.06¼	.06¼	.06¼
25 pale Paraffin Oil	.13	.13	.13
28 pale Paraffin Oil	.08	.08	.08
285 red Paraffin Oil	.13½	.13½	
250 red Paraffin Oil	.12½	.12½	
225 red Paraffin Oil	.11	.11	
200 red Paraffin Oil	.10	.10	
Refined Wax:			
120-122 a.m.p., per lb.	.05½	.05½	.05½
125-127 a.m.p., per lb.	.05⅝	.05⅝	.05⅝
130-132 a.m.p., per lb.	.06	.06	.06
135-137 a.m.p., per lb.	.06⅜	.06⅜	.06⅜
Petrolatum, in bbls., carload lots, per lb.:			
Dark green	.02	.02	.02
Amber	.03⅜	.03⅜	.03½
Extra amber	.03¾	.03¾	.03¾
Cream	.05½	.05½	.05½
Lily white	.07½	.07½	.07½
Snow white	.08½	.08½	.08½

*Lighterage 5.5c a bbl. extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Feb. 22	Feb. 15	Feb. 8
Gasoline, U. S. Motor, 58-60 437, in cases	.2790	.2790	.2790
Kerosene, standard white, in cases	.1865	.1865	.1865
Kerosene, water white, in cases	.2015	.2015	.2015
600 steam refined cylinder stock, in bbls.	.20	.20	
635 steam refined	.22	.22	
650 steam refined	.23½	.23½	
600 Pennsylvania flash	.28	.28	
630 Pennsylvania flash	.35	.35	
600 Warren E	.27	.27	
600 Oil City E	.25	.25	
Light 135	.46	.46	
Dark 135	.44	.44	

LOS ANGELES EXPORT PRICES

	Feb. 22		Feb. 15		Feb. 8	
Kerosene water white	.05¼	.05¾	.05¼	.05¾	.05¼	.05¾
U. S. Motor Gasoline, 53-55 437 e.p.	.08½	.09¼	.08½	.09¼	.08½	.09¼

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

*Corsicana heavy (May 15, 1926).....$1.25
Other fields .....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

*Carson County $1.25
*Hutchinson County 1.25
†Gray-Wheeler Counties...See gravity table

*Humble Oil & Refining Co. and Magnolia Petroleum Co., September 22, 1926. Kay County Gas Co., October 4, 1926.
†Magnolia Petroleum Co. (effective September 22, 1926), and Kay County Gas Co. (effective October 4, 1926), flat price of $1.25. Humble Oil & Refining Co. on gravity scale.

WEST TEXAS

*Iatan (November 23, 1926) $1.50
Crane-Upton-Crockett .....See gravity table

*Includes Howard County and Westbrook Fields. Kay County Gas Co. pays $1.65 for Howard County crude.

ARKANSAS-NORTH LOUISIANA

Cotton Valley (May 18) $1.20
Bellevue (September 16, 1926)..... 1.40
Urania (August 26, 1926) 1.10
Calion (May 18, 1926) 1.10
Other fields .....See gravity table

Note—Cotton Valley and Bellevue, Standard Oil Co. of Louisiana, Gulf Refining Co. and Magnolia Petroleum Co.; Urania, Louisiana Oil Refining Corp.; Calion (East El Dorado), Gulf Refining Co.

GULF COAST

(Goose Creek, Hull, Liberty, West Columbia, Orange, Boling, Sour Lake, Humble, High Island, Pierce Junction and Spindletop.)

‡Grade A $1.40
Grade B .....See gravity table
*Jennings, La. (October 29, 1926)..... 1.15
†Saratoga, Batson, Dayton (December 14, 1926) 1.40
**Markham 1.15

*Gulf Pipe Line Co. †Sun Pipe Line Co. ‡Humble Oil & Refining Co., Sun Pipe Line Co., Magnolia Petroleum Co., Gulf Pipe Line Co., The Texas Company. **The Texas Company.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

*Luling (May 18) $1.30
†Mirando (May 15) 1.25
Rockdale-Minerva (Milam County)... 1.25
*Thrall .....
Callihan (May 15) 1.75
Lytton Springs (Lockhart) See gravity table
Somerset .....See gravity table

*Posted by Magnolia Petroleum Co. Thrall prices same as north central Texas less 19½ cents per cwt. freight.
†Posted by Crown Central Pipe Line Co., Texpata Pipe Line Co., Humble Pipe Line Co., Magnolia Petroleum Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective November 17)

Rock Creek, Wyo. $1.85
Salt Creek .....See gravity table
Big Muddy 1.85
Mule Creek 1.45
Grass Creek, light 2.00
Grass Creek, heavy ..... .90
Elk Basin 2.00

(Continued on Page 136)

CRUDE OIL GRAVITY PRICE TABLE

Gravity—	0	1	2	3	4	5	6	7	8	9	10
	Okla., Kansas, N. & C. Texas	Louisiana-Arkansas	Smackover, Ark.	Stephens, Ark.	Panola County, Texas.	Wheeler County, (Tex. Panhandle)	Gray County, (Tex. Panhandle)	Crane, Upton, Crockett Counties (West Texas)	Salt Creek, Wyo.	Grade B & Light Crude (G. Coast)	Somerset, (South Central Texas)
Below 24	....	....	1.10	....	....	....	....	....	....	....	....
24 to 24.9	1.19	....	1.35	....	....	....	....	....	....	....	....
Below 25	....	....	....	....	....	....	....	....	....	1.40	....
25 to 25.9	1.23	....	1.40	....	....	....	....	....	....	1.45	....
Below 26	....	....	....	....	....	....	....	.80	....	....	....
26 to 26.9	1.27	....	1.45	....	....	....	....	.84	....	1.50	....
27 to 27.9	1.31	....	1.50	....	....	....	....	.88	....	1.55	....
Below 28	....	****	....	1.30	....	....	....	....	....	....	....
28 to 28.9	1.35	1.50	....	1.40	....	1.00	1.00	.92	1.50	1.60	1.35
29 to 29.9	1.39	1.55	....	1.45	....	1.04	1.04	.96	1.55	1.65	1.40
30 to 30.9	1.43	1.60	....	1.50	....	1.08	1.08	1.00	1.60	1.70	1.60
31 to 31.9	1.47	1.65	....	....	....	1.12	1.12	1.04	1.65	1.75	1.65
32 to 32.9	1.51	1.70	....	....	1.70	1.16	1.16	1.08	1.70	1.80	1.70
33 to 33.9	1.55	1.75	....	....	1.75	1.20	1.20	1.12	1.75	1.85	1.75
34 to 34.9	1.59	1.80	....	....	1.80	1.24	1.24	1.16	1.80	1.90	1.80
35 to 35.9	1.63	1.85	....	....	1.85	1.28	1.28	1.20	1.85	1.95	1.85
36 to 36.9	1.67	1.90	....	....	1.90	1.32	1.32	1.24	1.90	2.00	1.90
37 to 37.9	1.71	1.95	....	....	1.95	1.36	1.36	....	1.95	2.05	1.95
38 to 38.9	1.75	2.00	....	....	2.00	1.40	1.40	....	2.00	2.10	2.00
39 to 39.9	1.79	2.05	....	....	....	1.44	1.44	....	2.05	2.15	....
40 to 40.9	1.83	2.10	....	....	....	1.48	1.48	....	2.10	2.20	....
41 to 41.9	1.87	2.15	....	....	....	1.52	1.52	....	2.15	....	....
42 to 42.9	1.91	2.20	....	....	....	1.56	1.56	....	2.20	....	....
43 to 43.9	1.95	2.25	....	....	....	1.60	1.60	....	2.25	....	....
44 to 44.9	1.99	2.30	....	....	....	1.64	1.64	....	2.30	....	....
45 to 45.9	2.03	2.35	....	....	....	....	....	....	2.35	....	....
46 to 46.9	2.07	2.40	....	....	....	....	....	....	2.40	....	....
47 to 47.9	2.11	2.45	....	....	....	....	....	....	2.45	....	....
48 to 48.9	2.15	2.50	....	....	....	....	....	....	2.50	....	....
49 to 49.9	2.19	2.55	....	....	....	....	....	....	2.55	....	....
50 to 50.9	2.23	2.60	....	....	....	....	....	....	2.60	....	....
51 to 51.9	2.27	2.65	....	....	....	....	....	....	2.65	....	....
52 and above	2.31	2.70	....	....	....	....	....	....	2.70	....	....

Column 0—Oklahoma and Kansas: Carter Oil Co., Prairie Oil & Gas Co., Sinclair Oil & Gas Co., The Texas Company, Gypsy Oil Co. and Kay County Gas Co., effective February 22.
North and Central Texas: Prairie, Sinclair and The Texas companies' schedules for Oklahoma and Kansas also apply to North and Central Texas Fields. Humble Oil & Refining Co., Gulf Pipe Line Co. and Magnolia Petroleum Co., effective February 22.

Column 1—The Texas Company, effective February 22, announced that its schedule for Oklahoma would also be effective in Louisiana. Standard Oil Co. of Louisiana, which is the major buyer in Louisiana and Arkansas, did not announce any changes February 22. Magnolia Petroleum Co. announced that its schdules in Pine Island, Haynesville and Bull Bayou Fields of Louisiana would be same as Oklahoma, effective February 22.

Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer and El Dorado only): Standard Oil Co. of Louisiana, Atlantic Oil Producing Co. and Gulf, November 4, 1926.

Column 2—Standard Oil Co. of Louisiana, The Texas Company, Gulf, Atlantic and Magnolia, May 18, 1926.

Column 3—Atlantic Oil Producing Co., November 5.

Column 4—Magnolia Petroleum Co., December 21, 1926.

Columns 5 and 6—Humble Oil & Refining Co., effective February 22.

Column 7—Humble Oil & Refining Co., effective February 22.

Column 8—Midwest Refining Co., November 17, 1926.

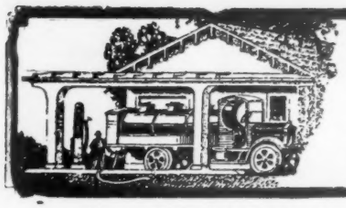
Column 9—Humble Oil & Refining Co. (schedule ends "35 and above"), Gulf Refining Co. and The Texas Company, Spindletop, November 10, 1926, other fields, August 30, 1926; Sun Pipe Line Co., Spindletop, November 10, 1926, other fields, September 1; Magnolia Petroleum Co., Spindletop only, November 16. (Note: The Texas Company lists gravity schedule as "light crude" with Grade B having flat price. Gravity schedule applies to Grade B crude for other companies.)

CALIFORNIA CRUDE PRICES

*Standard Oil Co.-Union Oil Co. (Effective March 11)

Gravity—	Long Beach Huntington Beach Richfield Brea-Olinda Rosecrans-Dom'gez Torrance-Inglewood	Whittier La Habra Montebello	Kern River McKittrick Midway-Sunset Elk Hills Lost Hills Belridge	Coyote	Santa Fe Springs	Coalinga	Wheeler Ridge	Santa Maria Ventura Salt Lake
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.87	.85	.75	.85	....	.75	.75	.85
16°	.90	.85	.75	.85	....	.75	.75	.85
17°	.94	.85	.75	.85	....	.75	.75	.85
18°	.98	.86	.75	.86	....	.75	.75	.85
19°	1.04	.87	.75	.87	....	.75	.76	.86
20°	1.10	.89	.83	.89	.89	.79	.78	.90
21°	1.16	.91	.90	.93	.91	.86	.81	.97
22°	1.22	.94	1.00	1.00	.94	.93	.85	1.04
23°	1.28	.97	1.11	1.14	.97	1.00	.89	1.11
24°	1.34	1.01	1.32	1.32	1.02	1.07	.92	1.18
25°	1.40	1.05	1.35	1.30	1.08	1.14	.97	1.25
26°	1.46	1.09	1.44	1.38	1.14	1.21	1.01	1.32
27°	1.52	1.13	1.55	1.46	1.24	1.28	1.05	1.39
28°	1.58	1.17	1.66	1.54	1.32	1.35	....	1.46
29°	1.64	1.31	1.77	1.62	1.40	1.42	....	1.53
30°	1.70	1.26	1.88	1.70	1.48	1.49	....	1.60
31°	1.76	....	1.99	....	1.60	1.56	....	1.67
32°	1.84	....	2.10	....	1.72	1.63	....	1.73
33°	1.93	....	2.21	....	1.84	1.70	....	1.79
34°	2.00	....	2.32	....	1.96	1.77	....	1.86
35°	2.08	....	....	....	2.08	1.84	....	1.93
36°	2.16	....	....	....	2.16	....	....	....
37°	2.24	....	....	....	2.24	....	....	....
38°	2.34	....	....	....	2.34	....	....	....
39°	2.44	....	....	....	2.44	....	....	....
40°	2.54	....	....	....	....	....	....	....
41°	2.64	....	....	....	....	....	....	....
42°	2.74	....	....	....	....	....	....	....

*Column 3—Long Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Brea-Olinda, 14 to 30 degrees; Torrance and Inglewood, 14 to 28 degrees; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.
Column 3—Whittier and La Habra crudes, 14 to 23 degrees; Montebello, 14 to 30 degrees.
Column 4—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.
Column 6—Santa Fe Springs. Only Union Oil Co. posts below 24 degrees.
Column 9—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 38 degrees. Posted only by Union Oil Co.



TANK WAGON MARKETS

Tankwagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Feb. 22.

ALL TANKWAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

†STANDARD OIL CO. (INDIANA)

Main Service Station Price

Tankwagon prices on April 19, 1922: g. up 1½c; May 8, up 1c; June 27, g. and k. up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 10, g. down 6.6c; Oct. 4, k. down 1½c; No. 10, g. down 1.4c; Dec. 20, g. up 2c; Jan. 12, 1924, g. up 2c; k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c; Jan. 23, 1925, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Feb. 12, g. up 2c, k. up 1c; April 19, g. down 1c; July 14, g. up 1c; Aug. 25, g. down 2c; k. down 1c; Sept. 1, g. down 1c; Feb. 4, 1926, g. up 1c, k. up 1c; April 16, k. up 1c; April 24, k. up ½c; April 29, g. up 1c, k. up ½c; May 6, k. up ½c; May 17, g. and k. up 1c; July 1, k. down 1c; July 3, k. down 1c; Aug. 13, k. up 1c; Aug. 24, k. up 1c; Oct. 13, k. down 1c; Oct. 26, g. and k. down 1c; Jan. 12, 1927, g. down 1c, k. down 0.4c to 1.5c according to state except Indiana and Michigan.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Chicago dist....	17.0	19.0	...	13.0
Decatur, Ill.	17.2	19 2	...	13.6
E. St. Louis ..	16 1	18 35	...	12.7
Joliet	17 4	19.4	...	13 8
Peoria	17 2	19 2	...	13 6
Quincy	17 2	19 2	...	13 4
Davenport, Ia.	19 5	21.5	2 0	13 5
Des Moines ...	16.0	18.0	2.0	13.5
Keokuk	19 5	21 5	2 0	13 5
Sioux City	14 9	16 9	2 0	13 1
Duluth, Minn. .	20.5	22.5	2 0	13 9
Minneapolis . .	17 2	19 2	2.0	13 9
La. Cross, Wis.	20 2	22 2	2 0	14 0
Milwaukee	19 1	21 1	2 0	12 9
Madison	19 3	21 3	2 0	13 1
Detroit, Mich. .	19.8	21.8	2 0	14.7
Grand Rapids .	19 7	21 7	2 0	14 6
Saginaw	19 9	21 9	2 0	14 8
Evansville, Ind.	20 0	22 0	3 0	14 0
Ft. Wayne	20 4	22 4	3 0	14 4
Indianapolis ..	20 2	22.2	3.0	14 2
S. Bend	20 4	22 4	3 0	14 4
Fargo, N. D. ..	21 9	23.9	2 0	15 9
Huron, S. D. ..	21 5	23 5	3 0	14 9
Sioux Falls, ..	19 5	21 5	3 0	14.4
*K. C., Mo. ...	18.0	30.0	3.0	11.9
*Springfield ...	19 8	21 8	3 0	12 8
*St. Louis	18 6	30.9	2 5	12 6
*St. Joseph ...	19 5	21 5	3 0	12.5
Wichita, Kans..	18.8	20.8	2.0	13.3
Bartlesville, Ok.	18 8	20.8	3 0	11 8

NAPHTHAS

	Tank wagon	Tank car
Oleum spirits	18.0	13.5
V. M. & P. naphtha	20.0	15.5
Cleaner's naphtha	20.0	15.5
Stanisol	21.0	...

Tankwagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL

Less than 100 gallons	10.0
100 to 799 gallons	9.0
800 or more gallons	8.5

Tankwagon prices of gasoline except in the Chicago district are subject to a discount of 1 cent a gallon on dumps of 50 gallons or more. In addition, on monthly purchases the following rebates from the 50-gallon dump price are allowed: 6,000 to 10,000 gallons, ⅛ cent, and 10,000 gallons or more, 1 cent.

In the Chicago district, the following rebate schedule is in effect on monthly purchases: Over 750 gallons, ¼ cent; over 2,000 gallons, ⅜ cent; over 6,000 gallons, 1½ cents; over 10,000 gallons, 2 cents. If the quantity bought during the year is equal to 12 times the monthly agreed purchases, the discount is paid or credited on the entire quantity less monthly payments. Service station customers receive a discount of 1 cent a gallon on purchases of 200 gallons a month or 2,400 gallons a year, and 2 cents a gallon on 600 gallons a month or 7,200 gallons a year.

*State tax 2 cents; remainder city tax.

SOUTHWESTERN DISTRICT

***Magnolia Petroleum Co.**

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Dallas, Tex. ...	14.0	17.0	1.0	15.0
Fort Worth ...	14.0	16.0	1.0	13.0
Houston	15.0	18.0	1.0	15.0
San Antonio	14 0	17 0	1 0	14 0
El Paso	16.0	19.0	1.0	16.0
Texarkana	15.0	18.0	1.0	15.0
Muskogee, Ok..	17.0	20.0	3.0	11.0
Okla. City	17.0	20.0	3.0	13.0
Tulsa.	17.0	20.0	3.0	13.0
Little Rock ..	19 0	22 0	4 0	13.0
Ft. Smith, Ark.	19.0	22 0	4 0	13 0

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, ½c; over 2,000 gallons, ¾c; over 3,000 gallons, 1c; over 4,500 gallons, 1¼c; over 6,000 gallons, 1½c; over 9,000 gallons, 1¾c; over 10,000 gallons, 2c. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1c; over 300 gallons a month, 1¼c; over 400 gallons, 1½c; over 500 gallons a month, 1¾c; over 600 gallons, 2c. The same rule applies for annual purchases as in the tankwagon discounts.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
*New Orleans	17 5	20 5	3 0	15.0
Alexandria ..	17 0	20 0	2 0	15 0
Baton Rouge .	16 0	19 0	2 0	13 5
LaFayette ...	17.0	20 0	2 0	14 5
Lake Charles .	17 5	20 5	2 0	15 0
Shreveport, La.	16 0	19 0	2 0	14 0
Memphis, Tenn.	18.0	21 0	3 0	15 0
Chattanooga ..	20 5	23 5	3 0	13.5
Knoxville	20.5	23 5	3.0	16 0
Nashville	19 0	22 0	3 0	16 0
Bristol	21 0	24 0	3 0	14 5
Little R'k, Ark.	19 0	22 0	4.0	13.0

*Tax of 3c includes city tax of 1c.
*Louisiana kerosene prices include 1-cent state tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
All Ohio points	21.0	23.0	2.0	17.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlanta Ga. ..	22.0	25.0	3.5	18.0
Augusta	22.0	25.0	3.5	17.0
Macon	22.0	25.0	3.5	18.0
Savannah	22.0	24.0	3.5	16.0
Birm'ghm, Ala.	22.0	25 0	4 0	17 5
Mobile . .	21 0	24 0	4 0	16.0
Montgomery	23 0	26 0	5 0	18 5
Clarksd'le, Miss.	20.0	23.0	4.0	14.5
Jackson	20 0	23 0	4.0	15.5
Natchez	19.5	22.5	4.0	15.0
Gulfport	21.5	24.5	6.0	15.0
Vicksburg ..	19 5	22 5	4.0	15.0
Jack'ville, Fla..	20.0	23.0	4.0	16.0
Miami	22.0	25.0	4.0	17.5
Pensacola	21.0	24.0	5.0	16.5
Tampa	20.0	23.0	4.0	16.0
Covington	21.0	24.0	5.0	17.0
Louisville ..	22 0	25 0	5.0	17 0
Lexington, Ky..	22.0	25.0	5.0	17.0

In addition to the state tax of 2c on gasoline, Montgomery has city tax of 1c on gasoline and ½c on kerosene. Prices in Georgia include ½c inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125c; in Alabama, an inspection fee of ½c on kerosene only. Pensacola tax includes 1c city levy. Gulfport tax includes privilege tax of 2c in addition to state tax.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
*Pittsburgh, Pa.	19.0	24.0	...	16.0
*Philadelphia .	19.0	24.0	...	16.0
*Scranton	19.0	24.0	...	16.0
*Allentown	19.0	24.0	...	16.0
Altoona	19.0	24.0	...	16.0
*Erie	19.0	24.0	...	16.0
Dover, Del. ...	21.0	24.0	2.0	16.0
Wilmington ...	21.0	24.0	2.0	16.0
Spring'd, Mass.	22.0	24.0	...	17.0
Worcester	22.0	24.0	...	17.0
Boston	22.0	24.0	...	15.0
Providence, R.I.	23.0	25.0	1.0	17.0
Hartford, Conn.	24.0	26.0	2.0	17.0
New Haven ...	24.0	26.0	2.0	17.0

*Pennsylvania tax of 2c is collected by the dealer and paid by him direct to the state.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Atlantic City..	19.0	....	...	15.0
Newark, N. J..	19.0	21.0	...	15.0
Annapolis, Md..	21.0	....	2.0	15.0
Baltimore	21.0	24.0	2.0	10.0
Cumberland	21.0	24.0	2.0	14.25
Washington ...	21.0	24.0	2.0	13.0
Danville, Va. ..	22.5	..	4 5	15 0
Norfolk	22 5	25 5	4 5	15.0
Petersburg	22 5	25.5	4 5	15 0
Roanoke	22 5	25 5	4 5	15 0
Richmond	22 5	25 5	4 5	15.0
Charleston, W. Va.	21.5	24 5	3.5	15 0
Keyser	21 5	....	3 5	15.0
Parkersburg ..	21 5	24 5	3 5	15 0
Wheeling	21 5	24 5	3.5	15 0
Charlotte, N. C.	23 0	26 0	4.0	15 0
Hickory	23.0	....	4 0	15 0
Mt. Airy	23 0	26.0	4 0	15.0
Salisbury	23 0	26 0	4.0	15 0
Charleston, S.C.	24 0	27 0	5 0	15 0
Columbia	24.0	27.0	5.0	15 0

PACIFIC COAST DISTRICT

Standard Oil Co. (California

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
San Francisco..	16.0	19.0	2.0	15.5
Los Angeles ...	15.5	18 5	2 0	15.5
Fresno	16.0	19 0	2.0	17.5
Reno, Nev.	22.0	25 0	4 0	19 0
Portland, Ore...	17.0	20.0	3.0	16.5
Seattle, Wash..	16.0	19.0	2.0	16.5
Tacoma	16.0	19.0	2.0	16.5
Spokane	20.0	23.0	2.0	20.5
Phoenix, Ariz..	22.0	25.0	3.0	20.5

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Albany, N. Y...	22.0	24.0	...	17.0
*New York	22.0	26.0	...	17.0
Buffalo	22.0	25.0	...	14.0
Rochester	20.0	24.0	...	14.0
Syracuse	22.0	24.0	...	17.0
Boston, Mass...	22.0	24.0	...	15.0
Augusta, Me....	25.0	28.0	3.0	17.0
Manchester , N. H.	24.0	26.0	2.0	17.0
Burlington, Vt.	24.0	26.0	2.0	17.0

*Price in steel barrels.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Omaha	16.25	20 25	2.0	13 25
McCook	20 75	22 75	2 0	14 75
Norfolk	18.0	20.0	2.0	12.75
N. Platte	20 75	22 75	2 0	14 50
Scottsbluff	20 25	22 25	2 0	14 75

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incids tax of	Tank wagon
Denver, Colo....	20.0	21.0	2.0	15.5
Pueblo	17.0	19.0	2.0	15 5
Grand Junction	23.5	25.5	2.0	19.0
Casper, Wyo....	20.0	22.5	2.5	14.0
Cheyenne	21.5	23.5	2.5	15.5
Butte, Mont. ..	22.0	22.0	3.0	19.0
Helena	25.0	27 0	3.0	19.0
Salt Lake, Utah	24.0	26 0	3.5	17.0
Boise, Idaho ..	25.5	27.5	3.0	19.0
Twin Falls	25.5	27.5	3.0	19.0
Albuquerque, N. M.	22.0	25.0	3.0	18.0

TANKWAGON PRICE CHANGES

February 9—Magnolia Petroleum Co. reduced tankwagon and service station prices of gasoline 1 cent at Texarkana, Ark.

February 9—Magnolia Petroleum Co. reduced gasol ne tankwagon and service station prices 1 cent at Texarkana, Tex.

February 10 — Standard Oil Co. of Kentucky reduced tankwagon and service station prices of gasoline 1 cent at Lexington, Ky.

February 12 — Atlantic Refining Co. advanced tankwagon and service station prices of gasol ne 1 cent over New England, and r e d u c e d kerosene 1 cent at p o i n t s which had been posted at 18 cents.

February 15—S t a n d a r d Oil Co. of Kentucky reduced tankwagon and service station prices of gasoline 2 cents at Covington, Ky.

February 15—Magnolia Petroleum Co. reduced gasoline tankwagon and service station prices in Oklahoma 1 cent. The same company announces a correct on in its prices at El Paso, Tex. The price at that point on January 5, should have been reported as 17 cents tankwagon and 19 cents service station, instead of 18 cents tankwagon and 19 cents service station. These prices were in effect until February 18, when the tankwagon price was reduced to 16 cents.

CRUDE OIL PRICES

(Continued from Page 135)

Lance Creek	2.00
Poison Spider	1.00
Notches	.65
Rex Lake	1.25
Byron (May 17)	2.50
Osage	2.0
Lake Basin (May 17)	2.0
Lost Soldier (contract) (May 17).....	1.4
Greybull-Torchlight	2.0
Hamilton Dome	1.3
Cat Creek (Mont.)	2.0
Sunburst (Mont.) (October 5).....	1.3
Florence (Colo.)	1.6
Artesia	1.6
Hogback (N. Mex.)	2.4

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective November 18)

Penna Grade Oil in New York Transit Line (New York)	$3.40
Bradford District Oil in National Transit Lines (Pennsylvania)	3.40
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.30
Penna Grade Oil in Southwest Pennsylvania Lines (West Virginia)	3.30
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.25
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.10
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (February 19).	1.90
Corning Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.25
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (February 19).....	2.00
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky)	.95
Keister (Pennsylvania) (February 19)..	1.60

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective November 17)

Lima	$2.21
Wooster	2.25
Illinois	2.10
Indiana	1.98
Princeton	2.10
Plymouth	1.63
Waterloo	1.35
*Western Kentucky (November 17)	1.83
†Cumberland, Barren, Clinton and Monroe Counties, Kentucky (February 1)	2.20
‡Oil in lines of Stoll Oil Refining Co. in Oil City, Ky. (February 19).....	2.00
†Clay County, Tennessee (November 18)	2.35
§Oil Springs (Canada)	2.68
§Petrolia (Canada)	2.61

*Posted by Indian Refining Co. and Ohio Oil Co.
†Posted by Paragon Development Co.
‡Posted by Stoll Oil Refining Co.
§Posted by Imperial Oil Co., Ltd.

MEXICO

(Effective May 13)

*Tuxpam light (f.o.b. Mex. ports).....	$1.35
†Panuco heavy (f.o.b. Mex. ports).....	1.15
Tuxpam (New York)	2.15
Panuco (New York)	1.80

*Plus 32.328c tax. †17.631c tax.

NORTH TEXAS MARKET CONTINUING SLUGGISH

WICHITA FALLS, Tex., Feb. 21.—The continued sluggish movement of nearly all products had additional weakening effect on north Texas refined markets the past week. One of the principal developments was the increased offerings of U. S. Motor (58-60 437) gasol ne, this product having b e e n fairly tight due to limited production.

Lack of export demand for h i g h e r gravity gasolines is having a tendency toward a reduction in output of these grades and a resultant increase in the production of U. S. Motor fuel and lower grades. Motor fuel, however, Monday was being held at slightly firmer levels than those reported from Group 3. This gasoline was s c a r c e under 8¼ cents whereas the Group 3 market was quoted at 8 cents.

In line with the lack of export demand higher gravities weakened approximately a quarter cent with 64-66 375 material being available at 9½ cents. On the other hand sales of 68-70 350-360 endpoint gasoline were made as high as 10½ cents.

Kerosene was easier in p r i c e with trading slower. The 41-43 water grade was offered quite freely at 6 cents Monday. Distillates a l s o indicated further accumulations and sellers even by reducing quotat ons failed to move these products readily. Gas oil was sluggish but prices were held.

Fuel oil continued the firmest market due to the scarcity of this product. Some sales were reported as high as $1.60 f.o.b. Wichita Falls, although Burkburnett refiners were getting only $1.52½ to $1.55.

Natural gasolines were softer in sympathy with Oklahoma prices which reflected sharp declines, but north Texas products were being held more firmly than those of Group 3. Grade C was quoted at 5¼ cents, with Grade B at 6½ to 6¾ cents and Grade A at 7 to 7¼ cents.

WAR on WASTE!

THE SINCLAIR LAW OF LUBRICATION

for every machine
of every degree of
wear
there is a scientific
Sinclair Oil
to suit its speed
and seal its power

SINCLAIR OILS
REG U.S. PAT. OFF.

A POWERFUL weapon in Sinclair's "War on Waste" is the Sinclair Law of Lubrication. This law tells the motorist that his engine has a "*degree of wear*" which requires just the right grade of oil "to suit its speed and seal its power". And he should change the lubricating oil in his car to fit its changing "degree of wear".

In following this Law of Lubrication, Sinclair dealers are rendering a real service to motorists. There is a science behind it—there's a real service behind it. There is a "War on Waste" behind it—a war on inefficient and destructive operation of machinery. Sinclair Opaline Motor Oil increases the efficiency and prolongs the life of the engine! It helps the motorist maintain economical transportation.

Why not increase your gallonage, by using this common-sense method of motor-oil recommendation?

SINCLAIR REFINING CO.
45 Nassau Street, New York

Atlanta Chicago Detroit Houston Kansas City Omaha

SINCLAIR
OPALINE
REG U.S. PAT. OFF.
MOTOR OIL

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Late Fields

(Continued from Page 34)

	Bbls.
Pure Oil Co.:	
Strothers	29,028
Sinclair Oil & Gas Co.:	
Carter	60
Cudjo A	14,940
Cudjo B	14,395
Fixico	3,600
	32,995
T. B. Slick:	
Franks	25,801
Superior Oil Co.:	
Cudjo	6,086
Noble	10
	6,096
Tidal-Osage Oil Co.:	
Carter	545
Fixico	9,055
Harjo	365
Mahardy	1,660
Tayeche	3,190
	14,815
Turman Oil Co.:	
Cudjo	3,065
Searight Pool	
Carter Oil Co.:	
Davis	2,625
Frazier	2,945
Stewart	4,860
	10,430
Gypsy Oil Co.:	
Cudjo	1,372
Mid-Continent Petroleum Corp.:	
Graysin	5,615
Prairie Oil & Gas Co.:	
Carter	140
Kinkaid	10,345
	10,485
Searight and others:	
Youngblood	210
Sinclair Oil & Gas Co.:	
Polly	295
Twin State Oil Co.:	
Jennings	130
Bowlegs Pool (8-6)	
Indian Territory Illuminating Oil Co.:	
Davis	4,219
Livingston	6,650
	10,869
Total Earlsboro Pool	19,076
Grand total, Seminole Field	304,397

SEMINOLE FIELD PRODUCTION
24 hours ending 7 a. m., February 21

Pool—	Wells	Barrels
Seminole Pool (9-6)	204	260,632
Searight Pool (10-6)	21	30,716
Bowlegs Pool (8-6)	2	10,118
Earlsboro Pool (9-5)	15	19,174
Total area	242	*320,640
Total month of January		5,864,570
Total for 1926 (6 months)		11,227,283

*New peak.

Roxana Petroleum Co.'s No. 1 Harber, SE cor. SW SE Section 22-9-6, in Seminole County, in the Seminole Pool proper, was shot with 10 quarts from 4,010 feet to 4,020 feet, without beneficial results. The well made 1,312 bbls. in the 24-hour period after the shot, which was 20 bbls. less than it produced before the shot. Barnsdall Oil Co.'s No. 1 J. Davis, SW cor. NW Section 11-9-5, in the Earlsboro Pool, was shot with 10 quarts and increased the production about 20 bbls., the well making about 250 bbls. after the shot. Pure Oil Co.'s No. 11 Strothers, NW cor. SW Section 26-9-6, in Seminole Pool, was shot with 17 quarts, which increased the flow from 1,400 bbls. to 3,500 bbls.

Pure Oil Co.'s No. 12 Strothers, SE cor. SW SW Section 26-9-6, had top of the sand at 3,975 feet, drilled to 3,980 feet, and flowed 110 bbls. in 24 hours. Gypsy Oil Co.'s No. 5 J. Wolfe, SW cor. NW Section 26-9-6, produced 4,520 bbls. first 24 hours after being put on air. Top of the Wilcox sand is 4,098 feet. Carter Oil Co.'s No. 3 Grisso, NE cor. SW Section 23-9-6, had the Wilcox from 4,110 feet to 4,132 feet, and swabbed 345 bbls. in 16 hours. Carter Oil Co.'s No. 4 Knapp, NW cor. SW Section 13-9-6, swabbed 25 bbls. from the Wilcox sand, 4,046 feet to 4,135 feet. Gypsy Oil Co.'s No. 1 Cudjo, NE cor. SW NE Section 4-9-6, was shot with 5 quarts in the Wilcox sand from 4,386 feet to 4,389 feet, flowed 955 bbls. the first 24 hours, and went dead. Owners contemplate shooting the well again. Barnsdall Oil Co.'s No. 1 M. Davis, NW cor NE SW Section 11-9-5, got the top of the Earlsboro sand at 3,496 feet, drilled to 3,516 feet, and made 139 bbls.

Carter Oil Co.'s No. 5 Grisso, NE cor. SE SW Section 23-9-6, was given a shot of 20 quarts from 4,070 to 4,090 feet, cleaned out, and swabbed 50 bbls. No. 4 G. F. Killings, NW cor. SE Section 14-9-6, had the top of the Hunton lime at 4,055 feet, with a show of gas.

Glidden Oil Co.'s No. 1 Fife, SW cor. NW SE Section 15-19-11, Tulsa County, an old well deepened, had the Hominy sand at 2,093-95 feet, and started off flowing at the rate of 40 bbls. an hour. No. 2 Fife, NW cor. SW SE Section 15-19-11, found the top of the Hominy sand at 2,084 feet, went in to 2,120 feet, and made 320 bbls. the first 24-hour gauge.

Magnolia Petroleum Co.'s No. 3 Sparks, NE cor. NW SW Section 11-9-5, Earlsboro Pool, made 1,177 bbls. the first 24 hours from the Earlsboro sand, 3,498 feet to 3,514 feet. Pure Oil Co. applied air to No. 13 Strothers, SW cor. NW SW Section 26-9-6, and the well produced 3,395 bbls. No. 9 Strothers, NW cor. SE SW Section 26-9-6, increased from a hole full of oil to 1,249 bbls. after the application on the air method. Independent & Inter-Ocean's No. 4 L. Jones, SE cor. SW SE Section 26-9-6, swabbed 310 bb's. from the Wilcox sand, 3,970-4,025 feet. Tidal Oil Co.'s No. 3 Carter, NW cor. SW Section 24-9-6, was shot with 5 quarts in the Wilcox sand, 4,053-4,076 feet, and swabbed 355 bbls.

The daily average production for the Garber Pool deep sand for the week ended February 16 was 14,254 bbls. from 162 wells. Daily average production of a number of Oklahoma pools for week ending February 16 was as follows:

Pool—	Wells	Barrels
Otoe	32	2,523
Thomas	19	1,670
Hubbard	54	5,789
North Braman	74	9,153
Braman townsite	34	4,429
Tonkawa deep sand	136	18,879
Total Tonkawa Pool	740	26,008
Pool—	Wells	Barrels
Wewoka	201	16,918
Gypsy	8	151
Yager	18	467
Holm-Jarvis	40	1,588
South Weleetka	46	1,011
Gilcrease-Papoose	226	7,978
Cromwell	399	13,811
Seminole	195	234,871
Searight	20	29,297
Bowlegs	2	10,661
Earlsboro	15	18,289
Davenport	211	4,019
Stroud	66	1,597
Skellyville	28	728
Deep Rock	44	2,007
Ingalls	10	507

Kansas

Barnsdall Oil Co.'s No. 1 Hearman, NE cor. NW SW Section 20-26-3, Butler County, had the top of the first break in the lime at 2,859 feet, drilled 1 foot in, and pumped 200 bbls. in 24 hours. Production of the Churchill Pool in Sumner County for the week of February 16 was 15,352 bbls. from 18 wells. Derby Oil Co.'s No. 1 Ritz, NE cor. NW SW Section 25-31-2, Sumner County, in the Churchill Pool, was shot with 100 quarts in sand at 1,841-92 feet, and produced 1,000 bbls. first 24 hours.

In the Searight group of wells in the Seminole Pool, the Prairie Oil & Gas Co.'s No. 7 Kinkaid, SE cor. NW SE, Section 33-10-6, is flowing 135 bbls. an hour from the Wilcox sand at 4,365-72 feet. This is surprising as it is the direct south offset to No. 6 Kinkaid, which was a very poor well.

GULF COAST

HOUSTON, Tex., Feb. 22.—The Yount Lee Oil Co. abandoned its deep test about the center of the southwest side at Spindletop at 5,700 feet. It was located on fee land, and was specially equipped with extra heavy equipment to drill to 10,000 feet. No formations were found to justify further expenditure. The Magnolia Petroleum Co.'s No. 2 fee, south of production, cored about 1 foot of rich sand around 5,400 feet, but the bit went into a water sand, and the test is now around 5,650 feet. These failures, together with the fact that the Hines and others' No. 1 Roberts, one-half mile east of the old cap rock district, went into salt at 3,050 feet would indicate the limits of the deep sand area are about defined. The Yount Lee Oil Co. still has a lot of acreage on the McFaddin, on the south and southwest sides of the old pool, within the deep productive horizon.

The original cap rock pool covered approximately 200 acres. The present productive deep sands on the southwest side embrace less than 30 acres. The cap rock was opened in 1901, and the yield to date is about 48,782,000 bbls. The deep sands were opened late in 1925, and the output to date is around 16,500,000 bbls.

Another deep sand test to be abandoned was the Atlantic Oil Producing Co.'s No. 1 Koehler, north of the Stevenson deep sand productive area in the Humble Pool. It was plugged at 5,740 feet. Benedum & Trees' No. 1 Hirsch, on the northwest side of the pool, is drilling deeper from 4,270 feet, where it got salt water. The Galena-Signal Oil Co. is drilling No. 21-A, Block 5, Stevenson. The Webb Oil Co. is drilling No. 8 Cherry.

The Gulf Production Co.'s No. 1 Tinney, off the Palangana Dome, in Duval County, is standing with 1,000 feet of oil in the hole at 3,650 feet. A perforated liner will be set. It is in the Piedras Pintas Pool, 1 mile west of the Humble Oil & Refining Co.'s producer brought in about one year ago.

SOUTHWEST TEXAS

SAN ANTONIO, Tex., Feb. 22.—H. B. Schlesinger, trustee, No. 1 Hahl, Duval County, Survey 76, located 20 miles northeast of Cole Field and the same northwest of Noleda Field, the nearest production, is standing 300 feet in 18.5 gravity oil at 2,465 feet.

Humble Oil & Refining Co.'s No. 3 Flato, at Kingsville, started out with core from sand at 2,240 feet to 2,250 feet, when the well blew in, estimated to be making from 60,000,000 to 100,000,000 feet of gas, and mud and water. Thirteen joints of drill stem and core barrel are still in the hole. Ten-inch casing was set and cemented at 1,487 feet. The well is in the middle of the field, in NE cor. Lot No. 9, Section 40, and menaces the field, though Humble officials believe they will be able to close it in. Gulf Production Co.'s No. 1 Tinney at Noleda, Duval County, at 3,651 feet, stood 1,000 feet in oil before liner was set. After setting liner, the well started swabbing pipeline oil. Location is over a mile southwest of the discovery well of Humble, at practically the same depth, brought in over a year ago. There has been only one other completion since.

Gulf's No. 1 Tinney, at Nolenda, Duval County, made considerable oil on swab but not enough, and is being deepened. Humble's wild gasser, at Kingsville, is subsiding. It quit for two hours Monday but started heading again at 7 p. m.

NORTH TEXAS AND PANHANDLE

FORT WORTH, Tex., Feb. 22.—J. S. Cosden, Inc., sold his Brown County properties in N. B. Mitchell, R. L. Coffelt and A. May Surveys, near Cross Cut, 1,760 acres, with 600 bbls. production, to Prairie for a reported consideration of $1,250,000. The Prairie took over operation this morning.

Phillips Petroleum Co. started moving material in for a gasoline plant in the Noodle Creek Pool, Jones County, oil absorption process, 3,000,000-foot capacity, in E half SW, Section 19, Block 19. The gas in this pool averages 3½ gallons per 1,000 feet.

In Eastland County, Gholson's No. 3 Duffer is flowing steadily at 30 bbls. of 40.7 gravity oil hourly, and 2,000,000 feet of gas at 3,470-82 feet. It will be deepened today. No. 2 Duffer is flowing 420 bbls.. No. 1, discovery well, was still flowing 500 bbls. Monday.

In Brown County, G. P. Mitcham's No. 1 Keller, NE cor. SE, Section 39, H. T. & B. Survey, 2½ miles north of Grosvenor, has 300,000 feet of gas at 1,423-24 feet, and looks like opening another Fry Pool.

In Young County, Fitzger and West's No. 1 Mitchell, about a mile northeast of Graham, extended production a half mile west, flowing 60 bbls. by heads, 39 gravity, from sand at 2,145-63 feet. Other production comes from sandy shale but this well has a true sand with the best pay in the last 3 feet.

In Pecos County, Mid-Kansas company's No. 2 Yates gauged 3,878, 3,852, 3,885 and 3,889 bbls., February 18 to 21 inclusive, no water showing. Illinois Pipe Line Co. has two 55s erected and is moving in two more. Crosbie Drilling Co. is moving in machine for test 2,970 feet from west line and 330 feet from south line, Section 70, Block 1, northeast of Yates Pool, in Upton County.

The Texas Company's No. 20 King swabbed 1,182 bbls. at 2,440-2,530 feet in Hutchinson County. McElroy Oil Co.'s No. 1 E. Cockrell, Section 4, Block B-3, extended production about a mile southeast, flowing 1,080 bbls. after a 210-quart shot at 2,976-3,050 feet and 720 bbls. the second day.

SEAL BEACH EXTENDED MILE

LOS ANGELES, Calif., Feb. 22.—Pan American's No. 2 Naples at Seal Beach blew in doing 2,000 bbls. daily from 4,757 feet. Seal Beach Field is extended approximately 1 mile westward, and a townlot area opened up. Work is already under way, with three new rigs going up.

EXPERIMENTATION, NOT LEGISLATION, NEEDED

(Continued from Page 30)

to me is the amazing part of Mr. Marland's bill. A gas-oil ratio of 500 feet per barrel of oil is set up. It is true this figure can be changed but that makes no difference if the figure is to be an arbitrary one and a compulsory one.

Do Mr. Marland or his advisers know that a controlled gas-oil ratio is a conservation? Do they know what the effect of back pressure is on oil wells? I say they do not know and no one else at this time knows what the effect would be of an arbitrary gas ratio or the general use of back pressure as applied to oil wells and yet this bill is an attempt to set up by law the general theory of back pressures and apply it to all the wells in the State of Oklahoma.

Pure Theory

The theory of gas-oil ratios is a simple one and it is generally accepted that to lower the gas-oil ratio the more gas will be conserved in the sand and consequently will result in an increased ultimate recovery of oil but as I have said this is pure theory. I would be extremely interested to have Mr. Marland publish some data which would show that back pressure or control gas flow will increase ultimate production of oil. Several years ago I made a rather extensive study of the effect of back pressures in the Brock Field in southern Oklahoma. There were about 25 wells producing at the time with a gas-oil ratio of approximately 1,200 feet per barrel. The Amerada Petroleum Corp. owned all the leases so that the operation was in effect a unit plan. Gas and oil production from each well was carefully measured. The experiments covered a period of six or eight months. Rather to my surprise the data collected showed conclusively that a back pressure applied to this type of production increased rather than decreased the gas-oil ratio and I might add that this production is the most typical of Oklahoma producing areas.

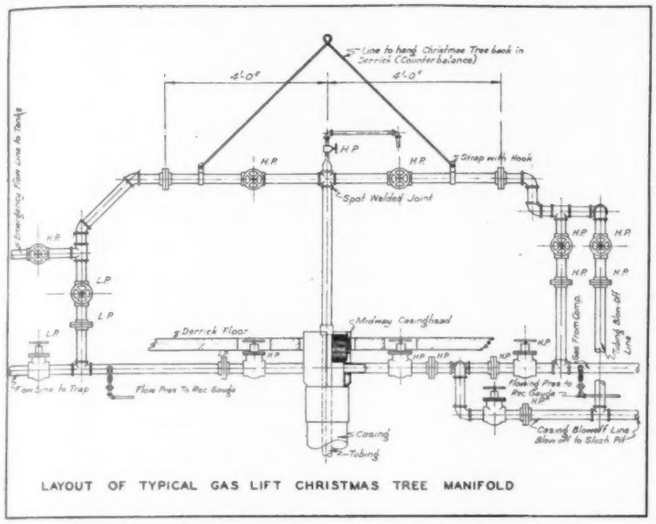
I do not believe Mr. Marland has any similar set of figures to prove that his theory is a conservation. Under certain conditions I feel sure that back pressures would mean conservation but the subject is extremely involved. Probably the question of whether the gas occurring with the oil is in solution in the oil or whether it is in a free state will determine whether or not back pressure can be used to advantage. The industry is making considerable progress in the investigation of this subject. It certainly seems unwise to ask at this time for legislation that will compel the oil industry of one state to do something which may be entirely wrong and at best is an unproved theory. We should be in an era of experimentation rather than legislation.

THE GAS LIFT IN ACTUAL PRACTICE

(Continued from Page 33)

and still maintain production. By using this method the working pressure of the extraneous gas is less than that required by well head control and the compression costs are materially reduced.

No wells should be produced at a rate that requires a back pressure low enough to permit water encroachment where it is known that a smaller flow under a higher back pressure will produce pipeline oil. A well flowing at a lower rate and free from water will in most cases produce more oil ultimately than one producing at a greater rate which makes



LAYOUT OF TYPICAL GAS LIFT CHRISTMAS TREE MANIFOLD

water. In addition to the recovery of a greater volume of oil, an additional saving will be made in treating of the oil to separate the water.

When the natural pressure in the formation declines the flow line is lowered to maintain the proper hydrostatic balance on the water as described. A careful study of pressures is made at all times by the use of recording pressure gauges which supply the necessary formation for determining the proper positions of the flow line.

Ultimate Recovery

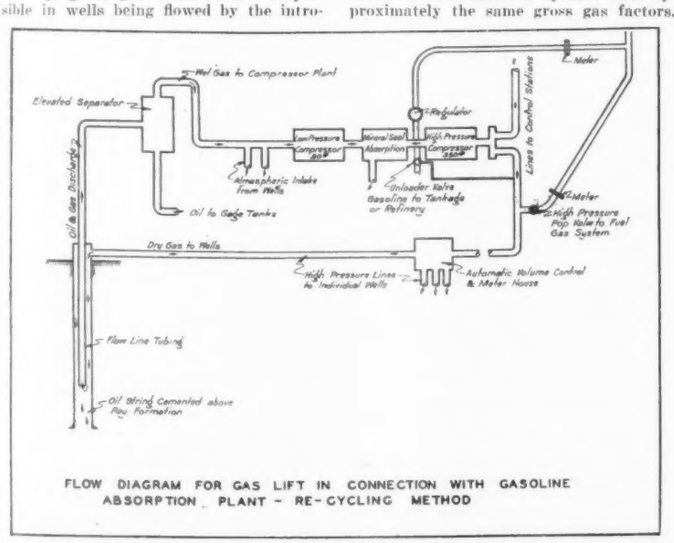
Keeping the gas factor as low as possible in wells being flowed by the introduction of extraneous gas recycled in connection with a gasoline plant is of secondary importance where it is desired to obtain the maximum amount of oil by gas lift methods.

As the natural pressure in a well declines a greater volume of extraneous gas can be circulated, causing increased aeration of the mixture in the flow line and a lower working pressure. When this method is used for prolonging the flowing life of a well the tubing will generally be at or near the bottom. The lowering of the pressure causes a greater differential to be created between the flow line and the producing formation. This differential will prolong the time of flow of oil into the well. In no case should the differential be made any greater than is absolutely necessary to maintain reasonable production from the well. Excessive production, natural or otherwise, at any time is liable to damage the well.

The increased gas factor method of prolonging the life of a well will permit more production than could otherwise be obtained. Where the gas is recycled through an absorption plant, additional gasoline is also recovered. The only additional cost in the method of using high extraneous gas factors is that of the additional required for compression. This, however, is small compared to the value of the additional oil recovered. This method is of especial advantage in producing deep wells where the gas lift is the only economical method which may be used.

Panhandle and Seminole

A comparison of wells on the gas lift in the Panhandle Field with those producing by the same method in the Seminole Field of Oklahoma is interesting. Wells in both districts operate with approximately the same gross gas factors, which are about 1,000 cubic feet per barrel. In the Seminole area, the extraneous gas factor is one-third of the gross gas factor, showing two-thirds of the output gas to be taken from the formation. In the Panhandle the volume of input gas is four times the output from the formation, or four-fifths of the total. From this it can be seen that the recycling method used in the Panhandle is dissipating the gas in the formation but one-third as rapidly as it is being dissipated in the Seminole area. The ultimate percentage of production in the Panhandle under these conditions should be two or more times that obtained from the Seminole area.


Wet Gas to Compressor Plant
Elevated Separator
Meter
Regulator
Low Pressure Compressor Stage
Mineral Seal Absorption
High Pressure Compressor Stage
Lines to Control Stations
Atmospheric Intake from Wells
Unloader Valve Gasoline to Tankage or Refinery
Oil to Gage Tanks
High Pressure Pop Valve to Fuel Gas System
Dry Gas to Wells
High Pressure Lines to Individual Wells
Automatic Volume Control & Meter House
Flow Line Tubing
Oil String Cemented above Pay Formation

FLOW DIAGRAM FOR GAS LIFT IN CONNECTION WITH GASOLINE ABSORPTION PLANT - RE-CYCLING METHOD

The use of the gas lift in the Seminole to increase the rate of production will result in a large unrecoverable amount of oil left in the formation. Gas lifts under back pressure control in this area would give a greater ultimate yield, but would decrease the maximum rate of production which would otherwise exist for a short time.

High peak production from flush pools is wasteful of natural energy, creates a surplus on the market and causes low prices. Greater benefits would accrue to all operators in such pools if scientific and economical means of production were adopted at the start.

PETROLEUM AND ITS RELATION TO BANKING

(Continued from Page 32)

assignment to us of the pipeline runs, and in most instances a shorter time. In addition to the assignment of the pipeline runs it is customary to secure any loans against production by a chattel mortagage on the lease equipment and a deed of trust on the property. When you take into account that you get a pipeline check monthly, or twice a month, I doubt if there is any other business that will return you your money as regularly and liquidate as quickly.

Banker's View of Hazards

While I have brought to your attention some safe loans and credits that can be extended to the oil business, you must not be misled by some other assets that have value to those engaged in the oil business that you as a banker cannot accept as assets, and that would be thoroughly dangerous and thoroughly unsound as a basis for loans.

1. Botton hole contracts. To the competent driller and man of experience, it appears to him that surely the purchase order or bottom hole agreement of a large company, such as The Texas Company, Magnolia, Humble and many others, is surely dependable collateral. He is certain of finishing the well to completion from his point of view, and while purchase orders are sources of payment, they are conditional sources. Subject to the carrying out of the contract on the part of the driller. It is manifestly unsafe as a general proposition to loan drilling operators money on bottom hole contracts, as we uniformly decline to extend credit against same, unless the drilling contractor has sufficient assets outside of his bottom hole contracts to liquidate his debt, in the event he should fail to complete his well, or be long delayed by an accident, or fishing job.

2. Drilling tools and equipment: While absolutely necessary for the drilling contractor and many operators, tools and equipment cannot prudently be accepted as collateral by a bank. Bankers are trustees of the depositors' money, and handling trust funds as they do they have no moral or other right to hake loans against the speculative element in the oil industry and the oil business does not expect them to do so.

The truth is, that the applicant for a loan touching the oil industry does not overlook the fact that the management of the bank is duly cautious and careful in extending credit. Oil men all expect to have money sooner or later and when they do, you find them depositing it in those banks that have established their confidence through a constant policy of careful lending against good security.

The Cattleman Example

Another feature of loans to oil producers that I would not fail to bring to your attention, and that is the danger of their expanding their operations too rapidly. You may have a customer engaged in the cattle business who is a safe risk in every way, handling say up to 1,000 head of cattle—a herd of cattle of that size being not out of proportion to his net worth, his own capital in the business, his facilities and experience to operate a ranch on which that number of cattle can be properly handled; but if he applied to you for a loan to handle 10,000 cattle with no additional capital going into the business, I am sure with the experience of not many years back, you would very promptly advise him that he was getting beyond his limit, and frankly tell him that you could not possibly swing the loan for him. (There used to be cattle loan companies that encouraged such operations, but I think they are all gone that tried it.)

With an oil producer a discovery well may be his undoing, if he is not willing to be reasonably conservative. One of the first questions we want to know is how many new wells he is starting, his liability for further drilling that will come about through necessary offsets in prospect. If his own program, or if the requirements that will be made on him will get him into deep water, we are compelled to advise him that the amount of loan that we would extend would not meet his needs and suggest that he find new capital, or sell his lease and take the safe course, rather than to encourage him by granting a loan that will only partially take care of his needs and possibly result in his losing the money that he has made through his discovery. We find that our customers (and we are proud of the large number of independent oil producers as well as corporations who favor us with their business), are responsive to a careful analysis of their business and their requirements and approve our willingness to go along with them in a conservative and safe way. As evidence that the oil business can be extended credit safely and properly we have during the last six years loaned several million dollars against producing properties as collateral with the lowest loss experience of any class of commercial risks.

The Personal Element

Of course, the personnel, character and integrity of and your knowledge and acquaintance with the individual applies as it does in all other credit relations. Our experience has been equally satisfactory, and as favorable in handling the business and accounts of those engaged in the oil business—large or small—where we use the same reasonable carefulness as in dealing with men in other lines.

In conclusion, there is one other phase of the relationship of the oil industry to banking that should command our attention and that is the necessity of keeping an "oil field bank" in a thoroughly liquid condition. In the early stages of oil development in a territory the local bank deposits generally expand rapidly from the influx of capital and newcomers. The permanency of the increase in bank deposits is very problematical, and it is imperative that a bank's assets be of a sufficiently liquid nature to meet declines in deposit totals. Large cash reserves, loans on call, United States Government securities, prime open-market commercial paper and eligible bankers' acceptances are the forms of assets that assure the proper liquidity for an "old field" bank. The acid tests of time and experience have demonstrated that a bank operated on these principles of investment survive the oil boom that invariably accompanies the discovery of oil in its trade territory. After the exictement and feverish activity of the boom passes, deposits generally reach a stage of stability with totals resulting from pay rolls, operating funds and pipeline receipts of land and royalty owners.

SEES GREAT PETROLEUM COUNTRY IN COLOMBIA

(Continued from Page 34)

rights by force, overthrowing the established order. Twenty-five years from now they may succeed, if they persevere. At present, their case is hopeless, as only a minorty in these countries have heard the call to arms.

Mexican Propaganda

Mexico, by its propaganda through those countries causing them to believe that it is the only safeguard between the rapacious Yanqui and their absorption

wins their adherence to that country. They do not realize that if such was the object of the United States, it could be accomplished with an almost bloodless war—with Mexico. Our fleet patroling the Atlantic and Pacific Coasts, forming an embargo, the taking of Tampico and the oil fields in that vicinity, also Vera Cruz and Puerto, Mexico, and the few harbors on the Pacific side and a patrol of the border between that country and the United States would bring Mexico to her senses inside of 90 days, as the loss of income from customs and oil would bankrupt the country in a short time. If it were necessary to send a few hundred hydroplanes and airplanes to the interior could be done, but probably such drastic measure would be unnecessary. Already the more than 700 Americans murdered in Mexico and along the border have cost more American lives than would actual warfare and the cost of the army along the border in Wilson's administration, Pershing's raid, etc., made more expense than would be necessary to win a war down there.

STANDARD SUSTAINED IN TRADE-MARK CASE

(Continued from Page 130)

used its "Red Crown" trade-mark for almost 40 years upon gasoline, the applicant seeking to register "Red Hat," claiming it as a trade-mark for gasoline, also. The Standard also claimed that the "Red Hat" mark had never been used by the applicant. It was pointed out that both trade-marks represent head coverings, both were shown in red and in both marks the word "Red" is used as a portion of the mark and in both two concentric circles are used. Likewise, in both, though not claimed as a part of the trade-mark, the word "gasoline" appears between the two circles at the bottom of the mark.

L. V. Nicholas, of the Independent Oil Men of America, testified that "Red Hat" as a trade-mark was being used by more than 125 concerns throughout the United States, and, as it had been argued that the applicant for this trade-mark "was a corporation not for pecuniary profit," the opposer insisted that it could not possibly indicate that its use originated with the applicant nor that the gasoline in question originated with any one of the members of the applicant's association any more than any other. It was also pointed out that the Independent Oil Men of America, the applicant itself, had never used the "Red Hat" design as a trade-mark, and as more than 125 concerns were using it there was no "exclusive" use by the applicant or by any one else. Also that the applicant was not and could not lawfully be engaged in the business of making or selling gasoline.

The opposer represented that the "Red Crown" mark is used by it exclusively in the Middle West in the states in which it is incorporated, or in which it is licensed to do business, and that its sales there amount to many hundreds of millions of gallons per year. The "Red Crown" trade-mark, it was alleged, had been extensively advertised for about 40 years in newspapers, and in various other ways. Allen Jackson, vice president of the Standard company, testified that in the three years preceding his testimony his company had expended several millions of dollars in advertising, its newspaper advertising alone having cost considerably more than a million dollars.

The Standard company referred to experiments made by Prof. Edward S. Robinson, associate professor of psychology at the University of Chicago, to ascertain if the two marks were deceptively similar, these experiments being among his pupils. He exhibited these two trade-marks alternately during a period of five seconds, and of the 59 students who were habitual purchasers of gasoline, approximately 13.6 per cent mistook the successive appearance of the two trade-marks for the repeated appearance of the same trade-mark; that is, 13.6 per cent of the 59 students confused the "Red Hat" with the "Red Crown" because of their similarity to the eye.

PANHANDLE FIELDS

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Brothers, 330 feet north and west of SE cor., Section 22, Block Y; No. 3, 330 feet north and 990 feet west of SE cor., Section 22, Block Y. McMillan Oil Corp.'s No. 1 J. M. Sanford, 330 feet north and east of SW cor. of east 80 acres of north 160 acres of south 525 acres of Section 22, Block 46, H. & T. C. Survey; No. 2, 330 feet south and east of NW cor. of east 80 acres of north 160 acres of south 525 acres of Section 82, Block 46, same survey. Peterson and others' No. 1 Johnson Brothers, 330 feet north and 165 feet east of SW cor. south 5 acres of west 10 acres of east 20 acres of the N half NW, Section 22, Block Y. Phillips Petroleum Co.'s No. 3 Johnson Brothers-Wiley, 330 feet south and east of the NW cor. of north 80 acres of south 480 acres of Section 70, Block 46, H. & T. C. Survey; No. 1 J. M. Sanford-McMillan, 250 feet north and west of SE cor. of west 75 acres of north 115 acres of Section 82, Block 46, same survey; No. 7 J. A. Whittenburg-Tinnie, 330 feet south and west of NE cor. of south 48 acres of Section 71, Block 46, H. & T. C. Survey. Prairie Oil & Gas Co.'s No. 54 Johnson Brothers-A, 2,980 feet south and 2,325 feet east of NW cor., Section 21, Block Y; No. 63, 425 feet north and 945 feet east of SW cor. of west 100 acres of north 200 acres of Section 4, Block B-4, D. & S. E. Survey; No. 12 M. Weatherly, 330 feet south and west of NE cor., Section 23, Block Y; No. 13, 330 feet south and 990 feet west of NE cor. of the same section. White Eagle Oil & Refining Co.'s No. 3 Johnson Brothers-Montgomery, 805 feet south and 330 feet east of the NW cor. of east 40 acres of Lot 2, Johnson Brothers Subdivision of M. Whitley Survey, No. 1.

Sherman County

Hagy & Harrington's No. 1 S. F. Flores, C SW, Section 64, Block 3-T, T. & N. O. Survey. Phillips Petroleum Co.'s No. 1 Price & Fuqua, C NE, Section 33, Block 2-B, G. H. & H. Survey.

Wheeler County

Gibson Oil Corp.'s No. 3 W. E. Bentley, 330 feet north and west of SE cor. of Section 42, Block 24, H. & G. N. Survey. J. J. Rock and others' No. 1 G. W. Porter, 330 feet north and east of SW cor. NW, Section 41, Block 24, same survey. The Texas Company's No. 1 W. E. Bentley, 330 feet south and west of NE cor. W half SW, Section 42, Block 24, of the same survey.

WARNING ISSUED BY PETROLEUM ENGINEERS

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more to the acre. This is because in rapid recovery, under conditions as at Seminole, the gas has less opportunity to dissipate its energy, and the oil is produced with a volume of gas not greatly in excess of that dissolved in it, thus not robbing an appreciable amount of gas from other oil in the sand. The air or gas lift principle has been applied elsewhere in many areas.

"Possibly in the Seminole districts certain improvements have been made in the actual practice of flowing the wells. In some cases flowing against a back pressure has retarded production and operators have even bypassed gas traps and flowed directly into lease tanks, which has increased production. So sensitive is the flowing balance with no surplus pressure available that all swings, right-angle bends, etc., should be eliminated. This is accomplished in some cases by welding the flow line to the side of the casing at a point in the cellar and coming off at an angle to the edge of the derrick floor, and thence flowing the oil directly into vapor-proof stock tanks. In this practice all swings possible are avoided and it allows only the minimum slippage in the line by keeping the oil moving in an upward direction until flowed into a tank where the lift effect is not needed.

"Surely there is an increasing appreciation of the part gas plays in oil production. The gas-oil ratio is today a common term among petroleum engineers and many operators. It is being more appreciated and acknowledged that under most cases of production, gas is the principal force in moving the oil to the well. The keen appreciation of this fact and the increasing effort to save the gas is gratifying."

Changes in Limit

E. O. Bennett, chief production engineer, Marland Oil Co. of Texas, said:

"California and Oklahoma fields in the use of the gas lift are hardly comparable with respect to conditions or natural gas factors.

"1. Each well in one field constitutes a different problem.

"2. Every field is totally different in conditions and problems.

"3. Writers are comparing 30-foot sands to 400-foot sands.

"4. Writers are comparing asphaltic 30 degrees A. P. I. to 42 degrees A. P. I.

"5. The fill up curve not considered.

"6. Character of sand makes great differences—Tonkawa highly cemented sand; Dominguez unconsolidated. Gas energy is used most efficiently in tight sand.

"The action of the conservative committee of the A. P. I. is justified. A gas factor limit of 500 feet with changes in limit as needed is equitable. The attitude of companies now toward gas conservation and results already obtained are proof of what can be done. Production engineers do have sufficient knowledge to wisely advise state legislatures. This is not a period for procrastination and indecision. (The Panhandle Field is an example of what production engineers were able to predict and suggest to the Texas Railroad Commission and other companies. The recommendations not followed: Water encroachment resulted.)

A further example:

Seal Beach Field

May 18, 1926—No. 2 Bixby, 4,427 feet, initial gas factor flowing through tubing and beaned, 250 cubic feet.

August 4, 1926—No. 3 Bixby, 4,468 feet, initial gas factor flowing through tubing and beaned, 256 cubic feet.

September 19, 1926—No. 1 Selover, Selover sand, 4,745 feet, initial gas factor flowing through tubing and beaned, 285 cubic feet.

Associated's No. 1 Bryant, in Bixby sand. Initial gas factor through tubing Not beaned properly 2,800 cubic feet.

"This illustrates clearly what can be done with gas factors. The Associated Oil Co. has in Ventura Avenue Field gas factors in virgin territory of 3,000 cubic feet. A comparison of the above makes one feel that these huge gas factors are unnecessary and unwarranted. Natural gas factors of wells in Dominguez Field on gas lift average 1,100 cubic feet, having been reduced from 1,600 feet. The newer the field, the lower the gas factor. Hence, improvement in Dominguez is greater than the ratios above given. The balance between the natural gas factor and production is controllable by gas lift operation. Several wells in the Dominguez area have gas factors below 500 cubic feet and this goal is not impossible of attainment if it were necessary to do so.

"It must be remembered that increasing the flow of oil into an open hole is accompanied by a more than equivalent flow of gas supplying the energy causing flow. This gas flow may have to be increased twice for an increased flow of oil."

Extreme Caution Urged

A. C. Rubel, Union Oil Co. of California, said in part:

"The problems of production by gas lift presented in Southern California, and particularly in the Los Angeles Basin fields are very different from those usually met in the Mid-Continent, and there is little by which a comparison of efficiencies may be made. The Los Angeles Basin wells are deep; are finished as a rule with small casing, and usually have a comparatively low fluid level, and a limited amount of fluid entering the hole.

"I join heartily in Mr. Boyd's approval of the action of the American Petroleum Institute in officially recognizing the principle of gas conservation, but like many who have given thought to this subject, advise extreme caution and much deliberation before any attempt is made to legislate in matters concerning gas oil ratios about which our knowledge is so very limited. With a range in gas oil ratios from gas wells producing but a spray of oil to oil wells producing but a small amount of gas, where can the limits be set?

"In the Dominguez Field, for example, where normal average gas oil ratios will run from 1,400 to 1,800 cubic feet per barrel, a ratio of 12,000 cubic feet per barrel was encountered in a well located near the top of the structure, where an upper sand of high gas content was included in the producing interval. By no device of back pressure, change of tubing depths or sizes could the ratio be materially reduced, and the only remedy of the condition would be to exclude this particular sand from the production. The sand contains some oil, and a rich gas which would be lost to the producer by its exclusion, and yet by allowing the sand to produce no harm, is being done the deeper sands by reason of gas depletion because there is no communication. Would the sealing off of this sand be a measure of conservation?

"The Marietta Process often results in a high gas oil ratio, and yet the gas is returned to the sand. This is certainly conservation.

"It is quite conceivable that in some cases it may be advisable to deliberately stimulate production by forcing the gas oil ratio far above normal, and then to return the resulting gas back into the sand to perform its work again.

Varied Opinions

Glenn D. Robertson, Associated Oil Co., Los Angeles, said in part:

"Although much has been learned during the last year about gas-oil ratios, there are as yet no well-established rules that can be followed which will produce given results. There are nearly as many opinions regarding its application, and the effects to be derived therefrom, as are operators. Such condition results from the varied experiences had by the different operators who have made investigations. Some claim the gas-oil ratio can be controlled or reduced to the proper proportion by beaning the wells back and adjusting the tubing.

"Production engineering is so young, and the principles governing its application to the extension of oil from its reservoir are so little understood, that it would take a wise man indeed to anticipate in legislation the strides to be made in the next few years. To hamper its development by ill-advised restrictions, or to embarrass it by hastily conceived legislation, would be to throttle what promises to be one of the greatest strides in the history of the development of natural resources."

Lack Present Knowledge

Professor L. C. Uren said in part:

"I believe that under favorable conditions gas conservation in oil production by any means will result in a greater ultimate oil recovery. However, we cannot in the present state of our knowledge predict for a given well, or given set of conditions, just what the proper gas-oil ratio or gas factor should be. I believe that it would require the continual service of several times as many petroleum engineers as we have available to properly determine the economic gas-oil ratio for every oil well in the United States. Please notice that I said the economic gas-oil ratio—and I think this is the only one we should consider. By economic gas-oil ratio, I mean that ratio which will lead to the maximum ultimate profit to the producer.

"I believe that the proposed control of the gas factor is only a part of what we must do to adequately conserve our oil reserves. We must also determine many other factors. We must know the economic spacing of the wells in every field. We must determine many details which determine the production efficiency. We must so far merge our mutual interests as to virtually unify operations in all individual fields. Frankly, I believe our objective should be something very similar to what has been called the unity plan. I favor, however, accomplishing

this largely by voluntary methods with a minimum of legislation. I believe it can be demonstrated to the satisfaction of any reasonable man that we can realize from three to four times as much profit per acre from our oil lands as we secure by present day competitive methods. Further, we can get by what we may call co-operative exploitation more than twice as much oil from every acre of our oil land than by present methods.

"The situation in which we now find ourselves is both an indictment and a challenge to the petroleum engineering profession, an indictment that we are unable to give the industry at this critical time a conclusive and certain answer in the present controversy; and it is a challenge that we promptly put our house in order.

"I wish to urge in the strongest terms at my command that the industry, and particularly the engineering profession, should take such steps as will definitely point the way toward a more constructive plan."

NORTH AND WEST TEXAS

(Continued from Page 39)

DAILY AVERAGE PRODUCTION CROCKETT COUNTY
Statement of Humble Pipe Line Co.

Producing Co. and Farm—	No. Wells	Prod.
Gulf Prod., Powell	4	80
Powell-D	1	85
J. K. Hughes, Powell-A	3	210
Powell-B	1	35
Humble O. & R., Powell	10	309
Serg	1	9
Powell-B	1	100
Republic Prod., Powell	1	174
Total	21	930

Statement of Marland Pipe Line Co.

Producing Co. and Farm—	No. Wells	Prod.
Cromwell, Powell	5	179
Humble O. & R., Powell	*	409
Roxana, Powell	1	20
Total	6	608

*Part run by Humble and part by Marland.

Total production Crockett County, 27 wells, 1,538 bbls. of oil.

DAILY AVERAGE PRODUCTION OF MITCHELL COUNTY

Producing Co. and Farm—	No. Wells	Prod.
Atlantic Oil Prod., Ricker	7	285
California Co., Abrams	10	291
C. M. Adams, Lse. 2	2	112
C. M. Adams, Lse. 3	3	140
Butler	2	74
Clark	1	30
Elder	6	283
Foster	2	208
O. Handley	2	117
LeSure	2	36
A. L. Miller	5	169
H. C. Miller	6	179
M. Stat. Life	1	30
Morrison	17	438
Petitfils	4	205
Smartt	7	150
Swenson	1	43
Womack	7	402
J. F. Carey, Morrison	1	30
Eastland, C. M. Adams	1	40
Joe W. Clark	1	9
Elder	1	55
Handley	1	11
Keynard	4	130
Magnolia, Francis Adams	1	110
Adams	6	303
Badgett	1	20
Coleman	1	5
Mary Foster	1	65
O'Neal	1	10
A. P. Watson	1	12
W. W. Watson	1	28
Womack	1	16
G. W. Womack	1	17
Tidal, Badgett	1	16
J. J. Handley	1	12
Total	111	4,080

Total average production 111 wells, 4,080 bbls. of oil.

GARZA COUNTY PRODUCTION

Producing Co. and Farm—	No. Wells	Prod.
Emerald Oil, Boren	1	8

JONES COUNTY PRODUCTION

Producing Co. and Farm—	No. Wells	Prod.
Atlantic, Howell	1	101
Phillips, Wadling	1	158
Winters	1	682
Midwest Explo., Thornton	1	313
Marland Oil, Mason	2	1,376
Total	7	2,630

DAILY AVERAGE RUNS, HOWARD COUNTY
Magnolia Pipe Line Co.

Producing Co. and Farm—	No. Wells	Prod.
Magnolia, Mary Chalk	2	118
O. Chalk	5	240
Hyman Chalk	1	25
G. O. Chalk	8	295
Total	16	678

Kay County Gas Co.

Producing Co. and Farm—	No. Wells	Prod.
Marland, H. R. Clay A Lse.	1	201
Humble, Douthit	1	48
Lockhart et al, Chalk	2	93
Marland, Chalk	8	594
Chalk A Lse.	2	97
Total	14	1,033
Choate & Henshaw, O'Daniel	1	Off
Lockhart & Carey, Scott	1	
10 storage, swabbing 10 oil and 25 water		
Reeves & Apperman, Clay	1	Off, deepening

Total production Howard County, 1,646 bbls. oil.

LOVING COUNTY

Producing Co. and Farm—	No. Wells	Prod.
Lockhart & Co., Allen	1	22

PECOS COUNTY

Producing Co. and Farm—	No. Wells	Prod.
Mid-Kansas and Trans. Yates (Open for one hour every day)	1	29

SCURRY COUNTY

Producing Co. and Farm—	No. Wells	Prod.
Northwest, Newman	1	12
J. J. Moore	2	14
W. P. Welborn	1	10
Total	4	36

WINKLER COUNTY

Producing Co. and Farm—	No. Wells	Prod.
Southern Crude Oil, Hendricks	1	172

MARKET UPSET BY LOWER CRUDE PRICES

(Continued from Page 28)

with jobbers or their own stations report being in a fair position, as movements through these channels continued in good shape during the week, but other refiners have been faced with accumulating stocks. This would indicate that there is sufficient contract material at least to take care of present consumption over the marketing territory.

The continued inactive spot market resulted in several refiners offering U. S. Motor (58-60 437) gasoline at 8 cents, the lowest price for this product since the latter part of 1924. One marketer reported being able to buy even lower than this figure but most reports of this material moving as low as 7¾ cents were checked to other refining districts selling on a basis of Group 3. Refiners holding out for 9 cents reported a few scattering sales, but very little business was done above 8 to 8½ cents.

Higher gravity gasolines also were inactive during the week. Tuesday the 64-66 375 material was soft at 9½ to 9¾ cents and the 60-62 400 grade at 8¾ to 9 cents. No export inquiries were reported either from North Texas or the Group and the absence of any indication of relief from this source forced the decided weakening in export grades. A few cars of 68-70 gasoline were reported sold at 10½ cents, but this material was available as low as 10 cents.

Natural Gasolines

The extreme weakness of natural gasolines was a bearish influence on higher gravity gasolines and enabled refiners to make lower quotations on their products. The natural gasoline situation apparently is the most unfavorable of the entire market although it is admitted that natural gasolines are more subject to fluctuations than other products and with a little stimulus could possibly react upward unexpectedly. Monday the natural gasoline outlook, however, was more serious than it has been for some time as material was piling up on the sellers with the dearth of orders and those without much storage were making sharp reductions in quotations.

Strictly Grade A material which has been relatively tight still was not overly free but was being offered at 7 cents Monday and Tuesday with other grades ranging from 5 cents on Grade C and up. Several buyers reported being able to get natural gasolines even cheaper out of Louisiana and Arkansas.

Kerosene Unsteady

After a comparatively brief period of firm markets during which prices were advanced a quarter cent, kerosene during the week again developed an unsteady tone and prices made some recessions. The 41-43 water white grade again was available at 6 cents freely. What effect the crude reduction will have on the kerosene situation also remains to be seen. Sellers had anticipated a renewal of demand similar to that of last year but the crude development and the uncertain situation may tend to prevent any extensive buying of this product except as necessary.

The kerosene situation has a further unsteadying influence due to the continued accumulating stocks of distillates which can be run to kerosene. Distillates weakened off another eighth to a quarter cent during the week with the product failing to develop any demand. The 38-40 straw grade was especially free and some sellers were offering it on orders for the 36-38 grade at 4½ cents.

This decline puts distillates nearly on a market level with gas oils, which were bringing from 4½ to 4⅝ cents depending on specifications. Gas oils, however, were noticeably easier generally and very little found any business over 4½ cents. Warmer weather has reduced materially the consumption of burner oils for which the gas oils have been most in demand.

Fuel Oil Uncertain

Sellers still were able to hold fuel oil prices despite efforts of some substantial industrial buyers whose ideas of markets were somewhat lower than the prevailing Group Three level. The general fuel oil situation is uncertain and on the whole is considered a day by day proposition. That is, one day fuel oils may be extremely tight at market prices and the next day sellers may be offering material freely. The lighter fuels, however, are uniformly firm because of their scarcity.

Lubs Improved

Lubricating oils were the only products which experienced improvement in demand during the week. For the past two weeks there has been an increased demand in practically all grades from compounders and jobbers anticipating their seasonal needs and as a result prices are steadier, except for the influence of the crude cut. Lubricating oil prices have reflected no general changes for six months and even after the crude reductions last November there was very little tendency to cut quotations.

RECOMMEND THAT GROUP OF EXPERT ENGINEERS STUDY CONSERVATION

At a meeting of the Legal Committee of the Mid-Continent Oil & Gas Association held in Tulsa on Tuesday of this week, a resolution was adopted that the committee report back to the Executive Committe of the Kansas-Oklahoma division of the association, and recommend that a group of experts be engaged to give extensive study to the matter of conservation and oil-gas ratio, and determine what changes, if any, should be made in the existing conservation laws of Oklahoma.

The committee hoped to obtain the co-operation of E. W. Marland in its study of conservation and in a telegram to Mr. Marland asked him to turn over to it the data he and his experts had assembled. The committee's telegram and Mr. Marland's reply are given below:

The Telegram to Marland

"After an all-morning discussion it was, with the exception of Mr Richardson, the unanimous sense of the committee that its work should have the benefit of the data and information gathered by you and your experts on this subject. That if any law was drafted by this committee or any amendment proposed to the existing law, such measure ought to be gone over by a committee from the association composed particularly of petroleum engineers and practical or technical experts in the production of oil. That there would not be sufficient time for our committee to give the subject the study and consideration it deserves and make its report back to the Mid-Continent Oil & Gas Association and for that association to act on the matter by the time the present legislature adjourns. It was also the unanimous sense of the committee that your wishes and advice should be obtained since you have taken the most active part so far in the attempt to have legislation enacted relating to the conservation of oil and gas, and as chairman I was directed to ascertain whether you would be willing to give this committee full co-operation in the work it proposes to do and furnish it such data and information as you and your experts have gathered to date on the subject, and whether you would acquiesce in the proposed plan not to attempt to have a bill in some form passed by the present legislature until our committee has made its study of the subject and made a report back to the Mid-Continent Oil & Gas Association. As our committee will meet again Tuesday, we trust you can wire us promptly."

Marland's Reply

"To assume that the waste of oil and natural gas resources of Oklahoma can be stopped by mutual agreement of producers in the absence of laws to prevent such waste is to assume that all men engaged in the production of oil are equally honest, equally intelligent, and equally careful in their operations and will develop their properties with due care and regard for their neighbors' rights and convenience. My long experience in active producing fields does not warrant that assumption. To delay for two years the passage of a law that will stop the waste of oil and gas and compel observance of neighbors' rights will mean the loss of hundreds of millions of barrels of oil and immeasurable quantities of natural gas from the resources of Oklahoma, and will mean the loss of hundreds of millions of dollars of income to the producers of that state.

"While it may be possible that no legislation can be passed at this session of the legislature, in face of the violent opposition of oil men toward any law to stop the waste now going on, I cannot acquiesce in your proposal to me that no attempt be made to pass such a law. I am confident that oil producers in Oklahoma, both large and small, would derive great and immediate benefits from a law preventing the waste of gas in connection with the production of oil, and that the whole people of the state would share in those benefits."

DEATH OF MRS. S. SPELLACY

LIMA, Ohio, Feb. 19.—Mrs. Eleanor Spellacy, wife of Simon Spellacy, 528 West North Street, this city, retired oil operator, died Friday, February 11, at the home of her daughter, Mrs. James Rice, in Sidney, Ohio. Death was due to heart disease.

SILAS BALDWIN DEAD

BRADFORD, Pa., Feb. 19.—Silas Baldwin, aged 84, died suddenly in the home of his daughter, Mrs. Thomas C. Francis, 65 State Street. He has been a resident since 1878, having come here from Butler County. He was associated with the Pennsylvania oil fields since 1860.

DEATH OF A. M. SELLERY

A. M. Sellery, for more than 10 years connected with the land department of the Ohio Oil Co., died in El Paso, Tex., last week. Death was due to black jaundice. Mr. Sellery had been stationed in Casper, Wyo., in Shelby, Mont., in Artesia, N. Mex., and at points in the Rocky Mountain region during his years with the Ohio Oil Co., and was widely known. The body was shipped to Neligh, Neb., where the young man's parents reside.

COLLECTING OIL TAXES

OKLAHOMA CITY, Okla., Feb. 18.—State Auditor A. S. J. Shaw announces that men have been placed in all parts of the State to collect delinquent oil gross production, gasoline and income taxes, and that it will be the policy of the office to make no penalty remittances. The auditor, between January 11 and February 10 of this year, collected $3,606,998 in gross production tax and $582,906 in gasoline tax.

WILDCAT OPERATIONS IN PANHANDLE

(Continued from Page 40)

J. C. Parks' No. 1 J. W. McConnell, Sec. 67, Blk. 4..... Rig.
J. C. Parks' No. 2 J. L. Noel, SW cor. W ½ SE Sec. 198, Blk. 3..... Set 8-in. 2,340 ft. and shut down.
Prairie O. & G. Co.'s No. 1 Bryan, Sec. 107, Blk. 4..... Spudded and shut down.
Prairie O. & G. Co.'s No. 2 Bryan, Sec. 107, Blk. 4..... Spudding
Prairie O. & G. Co.'s No. 2 J. W. McConnell-A, NE cor. SE, Sec. 67, Blk. 4..... Rig.
Prairie O. & G. Co.'s No. 3 J. W. McConnell-A, NE cor. NW SE, Sec. 67, Blk. 4..... Rig.
Prairie O. & G. Co.'s No. 4 J. W. McConnell-A, SE cor. Sec. 67, Blk. 4..... Rigging up.
Prairie O. & G. Co.'s No. 1 J. W. McConnell-B, SW cor. E ½ NE, Sec. 67, Blk. 4..... Rigging up.
Prairie O. & G. Co.'s No. 2 J. W. McConnell-B, SE cor. NE Sec. 67, Blk. 4..... Building rig.
Prairie O. & G. Co.'s No. 1 F. E. Percival, NW cor. W ½ NW Sec. 199, Blk. 3..... Building rig.
Prairie O. & G. Co.'s No. 2 F. E. Percival, NE cor. W ½ NW Sec. 199, Blk. 3..... Set 8-in. 2,340 ft.; shut down.
Prairie O. & G. Co.'s No. 1 E. F. Bryan, Sec. 107, Blk. 4.. Drilling 2,290 ft.
Republic Prod. Co.'s No. 1 Burnett, Sec. 116, Blk. 4..... Drilling 3,185 ft.
Roxana Pet. Corp.'s No. 3 E. F. Bryan-A, Sec. 93, Blk. 4.. Fishing tools 3,180 ft.
Roxana Pet. Corp.'s No. 4 Bryan-A, Sec. 93, Blk. 4..... Shot 140 qts. 3,170-3,202 ft.; casing parted; rigging company tools.
Roxana Pet. Corp.'s No. 2 E. F. Bryan-B, Sec. 107, Blk. 4

Roxana Pet. Corp.'s No. 1 E. F. Bryan-C, Sec. 107, Blk. 4.. Set 8-in. 2,346 ft.
Roxana Pet. Corp.'s No. 1 E. F. Bryan-D, Sec. 93, Blk. 4.. Cleaning out 3,217 feet.
Roxana Pet. Corp.'s No. 3 Bryan-D, Sec. 93, Blk. 4..... Top pay 3,195 ft.; 2,000 ft. oil; shut down 3,245 ft.

Roxana Pet. Corp.'s No. 1 Brown, Sec. 106, Blk. 4..... Drilling 500 ft.
Roxana Pet. Corp.'s No. 2 Brown, SE cor. Sec. 106, Blk. 4..... Spudding.
Skelly Oil Co.'s No. 1 H. Schafer, SW cor. N ½ Sec. 198, Blk. 3..... Rig.
Skelly Oil Co.'s No. 2 H. Schafer, Sec. 198, Blk. 3..... Rig.
Skelly Oil Co.'s No. 3 H. Schafer, Sec. 198, Blk. 3..... Rig.
Skelly Oil Co.'s No. 4 H. Schafer, Sec. 198, Blk. 3..... Rig.
Skelly Oil Co.'s No. 1 E. F. Bryan, Sec. 92, Blk. 4..... Flowed 200 bbls. 3,142-83 ft.
Stubblefield et al's No. 1 E. Cooper, SW cor. NE. Sec. 5, Blk. 9, I. & G. N. Sur..... New location, cellar.
The Texas Company's No. 1 M. P. Co. fee, Sec. 91, Blk. 4.

The Texas Company's No. 2 M. P. Co. fee, Sec. 91, Blk. 4. Swabbed 100 bbls. 3,159-70 ft.
The Texas Company's No. 1 C. A. Noel, Sec. 26, Blk. 4.. Set 12-in. 1,040 ft.; drilling 2,750
The Texas Company's No. 1 J. L. Noel, Sec. 187, Blk. 3.. Drilling 1,030 ft.
The Texas Co.'s No. 1 J. C. McConnell, NE cor. Sec. 66, Blk. 4..... Drilling 2,310 ft.
Vitex Oil Co.'s No. 1 C. R. Garner, SW cor. Sec. 113, Blk. 4, I. & G. N. Sur..... Rig.
White Deer Oil Co.'s No. 2 Jordan-Brown, Sec. 104, Blk. 4. New location; rig on ground.
Fishing casing 2,120 ft.

CHILDRESS COUNTY

Brookins et al's No. 1 Mrs. Givens, 600 feet N and W of SE cor. Sec. 676, W. & M. W. Sur..... New location; rigging up.
C. L. Sloane et al's No. 1 B. P. Smith, Sur. 49, F. P. Knott Lands..... Drilling 1,180 ft.

COLLINGSWORTH COUNTY

Duke & Langford's No. 1 Martha Johnson, Sec. 97, Blk. 22. Fishing 1,825 ft.
Harmon & Deems' No. 1 Wilson (Scott), Sec. 44, Blk. 21.. Location
Martin et al's No. 1 T. V. Norwood, Sec. 30, Blk. 16..... Spudded and shut down.
Wischkamper's No. 1 fee, C SE, Sec. 93, Blk. 16..... Estimated 2,000,000 ft. gas 1,527-60 ft. and 1,910-20 ft.; drilling 1,970 ft.

DALLAM COUNTY

James et al's No. 1 fee, Sec. 9, Blk. 47½..... Rebuilding rig 2,870 ft.
Harry Skelly et al's No. 1 Capitol Synd., Sec. 19, Blk. 17. Set 12-in. 1,175 ft.; shut down.
Marland Oil Co. et al's No. 1 Capitol Synd., Sec. 36, Blk. 18, Capitol Synd. land..... Drilling 660 ft.

DEAF SMITH COUNTY

Julian & DeGrace's No. 1 Mrs. R. A. Hindley, Sec. 47, Blk. K-8..... Rig blown down.
Red Hill Oil Corp.'s No. 1 Barrett, Sec. 93, Blk. K-4..... Drilling 300 ft.

DONLEY COUNTY

A. T. Drilling Co.'s No. 1 F. E. Harrington, Sec. 39, Blk. 3-C..... Top lime 2,070 ft.; run 8-in. 2,365 ft.

GRAY COUNTY

Archer, Blake et al's No. 1 Turneau, Sec. 111, Blk. 2-B.. Spudded and shut down.
Amos et al's No. 1 Crews, NW cor. Sec. 9, Blk. 25..... Rigged up and shut down.
Bay Shore Oil Co.'s No. 1 C. W. Bradford, Sec. 143, Blk. 2-B..... Shut down 2,666 ft.; bit in hole
Blackwell & McGee's No. 1 Bowers, Sec. 92, Blk. 2-B.... Total depth 2,270 ft.; straight-reaming.
British-Amer. O. Co.'s No. 1 J. E. Meers, Sec. 107, Blk. 3.. 58,000,000 ft. gas and slight spray oil; total depth 2,864 ft.; run 6-in.

British American Oil Co.'s No. 1 J. M. Patton, Sec. 61, Blk. B-2..... Rigging up.
Cole O. & G. Co.s (was Magdalene Oil Co.'s) No. 1 J. E. Williams, Sec. 17, Blk. 1..... Show gas 2,336 ft.; shut down 3,240 ft.

Empire G. & F. Co.'s No. 1 W. C. Archer, SW cor. NE Sec. 174, Blk. 3..... New location.
Empire G. & F. Co.'s No. 1 B. Hughey, Sec. 129, Blk. 3.. Set 6-in. 3,024 ft.; rainbow show oil 3,062 ft., 25,000,000 ft. gas; 1,100 ft. oil and 1,500,000 ft. gas granite wash 3,120-25 ft.; deepened 5 ft. to 3,130 ft.; swabbed 30 bbls.; cleaning out to deepen.

Empire G. & F. Co.'s No. 1 J. F. Meers, NE cor. SE Sec. 107, Blk. 3..... Rigging up.
Empire G. & F. Co.'s No. 1 J. J. Wall, Sec. 161, Blk. 3.. Total depth 2,930 ft.; shut down; 43,000,000 ft. gas., mixing mud to hold gas.

Empire G. & F. Co.'s No. 1 Webb, SW cor. Sec. 59, Blk. 25..... Drilling 1,675 ft.
Gray Pet. Co.'s No. 1 W. L. Herndon, Sec. 147, Blk. 3.. Run 10-in. 2,405 ft.; cleaning out.
Gulf Production Co.'s No. 1 J. M. Saunders, Sec. 40, Blk. 3..... Drilling 675 ft.
Humble O. & R. Co.'s No. 1 T. B. Haggard, SW cor. Sec. 112, Blk. 3..... Spudding 125 ft.
Johnson & Martin's No. 1 Fanny Holloway, Sec. 7, Blk. H, A. W. Wallace Sur...... Rig on ground.
John G. Lane's No. 1 A. Chapman, Sec. 19, Blk. 1, A. C. & H. B. Sur..... Drilling 2,810 ft.
Magnolia Pet. Co.'s No. 1 fee, Sec. 11, Blk. 3..... Drilling 1,740 ft.
Pampa Oil Co.'s No. 1 W. R. Campbell, Sec. 90, Blk. 3.... Shut down 120 ft.
Pampa Pet. Co.'s No. 1 Mary Leopold, Sec. 141, Blk. 3.... Shut down 2,355 ft.
Purple Sage Oil Co.'s No. 1 Johnson, Sec. 8, Rockwall County school land..... Drilling 300 ft.
Riley & Heck's No. 1 Mrs. Hopkins, Sec. 66, Blk. 2-B.. Set 8-in. 2,640 ft.; standardizing.
Ruby Oil Co.'s (was Weir, Kribs & Finklea's) No. 1 B. F. Talley, Sec. 114, Blk. 2-M..... Shut down 635 ft.
The Texas Company's No. 1 H. M. Barrett, Sec. 131, Blk. 3..... Rotary; run 12-in. 625 ft.
The Texas Company's No. 1 Osborne, Sec. 108, Blk. 3.... Standardizing 2,464 ft.
The Texas Company's No. 3 Saunders, C E 2/3, Sec. 3, B. & B. Sur..... Drilling 1,850 ft.
Travis et al's No. 1 J. Back, Sec. 44, Blk. 25..... Standardizing 2,024 ft.
J. Williams et al's No. 1 C. W. Bradford, Sec. 123, Blk. B-2..... Rig.

HANSFORD COUNTY

Caldwell et al's No. 1 J. Adriance, Sec. 21, Blk. 2, G. H. & H. Sur..... Drilling 590 ft.
F. W. Dillard et al's No. 1 F. A. Davis, Sec. 50, Blk. 2.. Spudded and shut down.
Oklavania Oil Co.'s No. 1 Whitson, Sec. 2..... Rigging up 1,909 ft.

HARTLEY COUNTY

Amerada Pet. Corp.'s No. 1 Frances Farwell, Sec. 27, Blk. 16..... Drilling 2,100 ft.
Deep Rock Oil Co.'s No. 1 Lyman & Balfour, Sec. 9, Blk. 2..... Shut down 1,710 ft.

Eslick et al's No. 1 J. B. Irving, Sec. 13, Blk. 13..... Total depth 2,050 ft.; fishing.
W. W. Holmes' No. 1 G. B. Coots, Sec. 58, Blk. XR..... Show gas 2,450-80 ft.; set 6-in. 2,800 ft.; fishing 2,848 ft.

J. E. McKanna's No. 1 E. S. Collins, Sec. 3, Blk. LS..... Drilling 2,000 ft.
J. E. McKanna's No. 1 Frances Farwell, Sec. 30, Blk. 32.. Total depth 810 ft.; shut down.
J. E. McKanna's No. 1 J. M. Shelton est., Sec. 29, Blk. 202. Fishing 3,205 ft.
Kork Oil Co.'s No. 1 J. M. Shelton est., Sec. 1, Blk. S-B.. Spudded and shut down.

HEMPHILL COUNTY

A. J. Calhoun's No. 1 J. C. Isaacs, Sec. 189, Blk. C..... Spudded and shut down.
Hoover et al's No. 1 Schaller est., Sec. 4..... Spudded and shut down.
Hoover et al's No. 1 fee, J. S. Hood Sur..... Small show oil and gas 4,027 ft.; hole full water in sandy lime 4,005-10 ft.; running 5-in. 4,220 ft.; shut down; waiting on pipe.

HUTCHINSON COUNTY

Amarillo Oil Co.'s No. 1 Ida Ingerton, 9,280 feet from NL and 330 feet from EL Sec. 41, Blk. 47..... New location; rig on ground.
Anderson & Pritchard's No. 1 Yake, Sec. 1, Blk. J..... Top lime 1,930 ft.; set 8-in. 1,931 ft.; 45,000,000 ft. gas 2,640 ft.; top pay 2,746 ft.; spray 20 bbls.; show water 2,760 ft.; drilling 2,790 ft.
Dominion Oil Co.'s No. 1 C. H. Jasper..... Shut down 2,000 ft.; drilling water well.

Marland Oil Co.'s (Leo Flowers) No. 1 Carver, Wm. Heath Sur..... Underreaming 8-in. 2,410 ft.
Pole Cat Oil Co.'s No. 1 W. B. Haile, Sec. 24, Blk. M-21.. Rig.
Panfield Oil Co.'s No. 1 Luginbyhl Bros., Sec. 50, Blk. M-23..... Shut down 1,200 ft.
Prairie, Shamrock & Hagy's No. 1 Yake, Sec. 35, Blk. 47.. Small shows in lime 2,818-25 ft. and 2,872-75 ft.; 300 ft. oil and 600 ft. water 2,890 ft.; drilling 2,985 ft.
Vitex Oil Co.s (was Get Oil Co.'s) No. 1 W. F. Allen.... Rigging up.
Wentz Oil Corp.'s No. 1 Cal Merchant, Sec. 34, Blk. 47.. Shut down 2,800 ft.; to complete as gasser.
Western Oil Corp.'s No. 1 Jarvis, Sec. 95, Blk. 5-T..... Hole full water 3,505-08 ft.; will abandon.

LIPSCOMB COUNTY

Everett et al's No. 1 Mrs. H. D. May, Sec. 612, Blk. 43.. Shut down 960 ft.
McCorkle's No. 1 A. Barton..... **Fishing 2,760 ft.**
Smith, Kinsley & Ruby's No. 1 C. W. Jones, NE cor. SW Sec. 100, Blk. 43..... Rig.

MOORE COUNTY

Amarillo Oil Co.'s No. 1 Masterson-J, Sec. 59, Blk. O-18.. 10,000,000 ft. gas 3,025-40 and 3,050 ft.; total depth 3,084 ft.; bradenheading.
Amarillo Oil Co.'s No. 2 Terry Thompson, Sec. 19, Blk. 44. Show gas 2,750-2,830 ft., 70,000,000 ft. gas 2,820-90 ft.; total depth 2,935 ft.; pulling 8-in.
Douglas Oil Co.'s No. 1 H. W. Beauchamp, Sec. 112, Blk. 44..... Hole full water 1,470 ft.; drilling 1,610 ft.
Flowers and Marland Oil Co.'s No. 1 J. T. Sneed, Jr., Sec. 25, Blk. 1..... Rebuilt rig 3,045 ft.; fishing.
Humble O. & R. Co.'s No. 1 Kilgore, Sec. 28, Blk. 44..... Show gas 2,960 ft. 3,010 ft., and 1,000,000 ft. at 3,045 ft.; increased to 6,000,000 ft. at 3,055 ft.; drilling 3,455 ft.
Morton & Co.'s No. 1-H Rubert, Sec. 191, Blk. 3-T..... Run 8-in. 2,075 ft.
Phillips Pet. Co.'s No. 2 Special Sneed..... Spudding.
Prairie O. & G. Co.'s No. 2 Sneed, Sec. 26, Blk. 6-T..... Total depth 4,170 ft.; running 5-in.
Moore County Oil Co.'s No. 1 Sneed, Sec. 30, Blk. 6-T.... Underreaming 12-in. 965 ft.
Shadler Bros.' No. 1 John Lowery, Sec. 237, Blk. 44..... Drilling 760 ft.
Prairie and Shamrock's No. 1 Gober, Sec. 16, Blk. M-21.. Repairing clutch 1,120 ft.

OCHILTREE COUNTY

W. G. Burton's No. 1 Stickler, Sec. 579, Blk. 43..... Shut down 3,740 ft.
Hamilton et al's No. 1 R. E. Wamble, Sec. 144, Blk. 43.. Shut down 250 ft.
McCorkle Pipe Line Co.'s No. 1 R. H. Moore, Sec. 471, Blk. 43..... Shut down 1,600 ft.
McCorkle's No. 1 Weinett, Sec. 674, Blk. 43..... Rig and tools.
Standard Dev. Co.'s No. 1 Bowden, Sec. 923, Blk. 43.... Shut down 900 ft.

OLDHAM COUNTY

Prairie O. & G. Co.'s No. 1 Landergin, SE cor. NE SW, Sec. 45, League 310, Capitol Land..... Rigged up and shut down.

POTTER COUNTY

Greater Amarillo Pet. Co.'s No. 1 Townsite, Sec. 167, Blk. 2, A. B. & M. Sur..... Shut down 2,020 ft.
Farmer O. & G. Co.'s No. 1 J. A. Jones, Sec. 3, Blk. 1.... Shut down 200 ft.
Kelmey Oil Co.'s No. 1 W. H. Bush, Sec. 19, Blk. 9..... Rig.

RANDALL COUNTY

Patterson et al's No. 1 Campbell & McIlroy, NE cor. Sec. 60, Blk. K-14, T. T. R. R. Sur..... Location.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Mrs. H. Ledrick & Sons, Sec. 7, Blk. 5-A..... Rainbow show oil 4,492 ft. and 4,650 ft.; drilling 4,762 ft. with another rainbow show.
Gibson Oil Corp.'s No. 1 T. S. Jones, Sec. 109, Blk. C.... Set 2-in. 2,585 ft.; drilling 3,750 ft.
Mercer & Dunbar's No. 1 H. A. Gill, Sec. 127, Blk. M-2.. Cellar.
Murphy et al's No. 1 Gill, Sec. 31, Blk. M-2..... Shut down 650 ft.
Chas. Page et al's No. 1 Hamilton Tract 2, Clay County School Land..... Shut down 440 ft.
Pan-State Oil Co.'s No. 1 A. H. Tandy, Sec. 179, Blk. 42.. Rigging up.
Pettijohn et al's No. 1 J. A. Meade, Sec. 29, Blk. 1-B.... Skidded rig 20 ft. west and shut down.
Trammel et al's No. 1 A. H. Tandy, School Land Sur.... Spudded and shut down.

SHERMAN COUNTY

Gibson Oil Co.'s No. 1 Bivins, Sec. 36, Blk. 3-B..... Drilling 800 ft.
Hagy & Harrington's No. 1 S. F. Flores, C SW Sec. 64, Blk. 3-T, T. & N. O. Sur..... Location.
Phillips Pet. Co.'s No. 1 Price & Fuqua..... New location.
Phillips Pet. and Savoy's No. 1 Roach, Sec. 161, Blk. 1-C.. 500,000 ft. gas 2,840-2,915 ft.; hole full water 3,480-85 ft.; run 5-in. 3,510 ft.
Whitehead et al's No. 1 Lee Bivins, C SW Sec. 36, Blk. 2, G. H. & H. Sur..... Location.

SWISHER COUNTY

Keagan & Baker's No. 1 Stallings, Sec. 8, Blk. M-13..... Spudded and shut down.
R. H. Miller's No. 1 Todd..... Location.

WHEELER COUNTY

American Ref. Co.'s No. 1 E. E. Carlton, Sec. 29, Blk. 13.. Total depth 2,300 ft.; plugged back to 2,029 ft. to shoot.
Angus et al's No. 1 L. C. Burcham, Sec. 91, Blk. 17..... Drilling 1,355 ft.
Angus et al's No. 1 G. A. Morgan, SW cor. SW NE Sec. 93, Blk. 17..... Rig on ground.
Boyles & Johnson's No. 1 S. L. Lewis, Sec. 40, Blk. 24.... Rigged up tools and shut down.
Continental Oil Co.'s No. 2 Company, NW cor. SW Sec. 11, Blk. 27..... Drilling 350 ft.
Continental Oil Co.'s No. 2 J. H. Jackson, SE cor. NE Sec. 11, Blk. 27..... Rigging up.
Foster et al's No. 1 S. R. McDonald, SE cor. NW SW, J. N. Lindsay Sur..... Spudded and shut down.
Hill, Cook & Riley's No. 1 L. H. Webb, Sec. 61, Blk. 24.... Top lime 2,022 ft.; shut down 2,500 ft., contract depth; will deepen.
Lone Star Gas Co.'s No. 1 J. F. Coates, NE cor. SW Sec. 93, Blk. 27..... Drilling 1,435 ft.
Magnolia Pet. Co.'s No. 1 Laycock, Sec. 9, Blk 27..... Spudded; driving 15-in.
Magnolia Pet. Co.'s No. 1 J. A. Worley, NE cor. Sec. 39, Sec. 42, Blk. 24..... Rig on ground.
Marland Oil Co.'s No. 1 W. E. Bentley, SW cor. NE Blk. 24..... Spudded.
Murchison & Fain's No. 1 Close, Sec. 77, Blk. 23..... Rigging up tools 1,525 ft.
Piney Oil Co.'s No. 1 J. A. Clark, SW cor. NE SW Sec. 58, Blk. 24..... Run 8-in. 1,450 ft.
J. J. Rook Co.'s No. 1 T. C. Jones, Sec. 1, Blk. 34..... Fishing casing 1,300 ft.
J. J. Rook's No. 1 C. W. Porter..... Rig.
Wheeler O. & G. Co.'s No. 1 P. J. Sorenson, Sec. 53, Blk. A-4..... Spudded and shut down.
Smith, Brady et al's No. 1 P. J. Sorenson, Sec. 53, Blk. 4-A. Shut down 1,470 ft. for pipe.
E. L. Woodley, Jr.'s No. 1 Woodley, Sr., Sec. 13, Blk. 5-A.... Water 2,112 ft. and 2,142-44 ft. Total depth 2,164 ft.; cement.
The Texas Company's No. 1 Bentley..... Building rig.
Tidal Oil Co.'s No. 1 Bentley, NE cor. E ½ SW Sec. 42, Blk. 24..... Rig on ground and cellar.
Upham Gas Co.'s No. 1 R. W. Griswold..... Rigging up.

WEST TEXAS WILDCATS

(Continued from Page 39)

Ben D. Simon & Cromwell's No. 1 Brookfield, C SE Sec. 23, Blk. 6, H. & T. C. Sur. ... Three bbls. sulphur water per hour; 2,570 ft; cased off; drilling 2,680 ft.

The Texas Company's No. 13 H. M. King, Sec. 85, Blk. X, C. C. S. D. & R. G. N. G. Sur. ... Top salt 690 ft.; drilling 2,265 ft.

Texas Dev. Co.'s No. 1 Cowden ... Shut down 3,820 ft.

Texas Dev. Co.'s (Cooke) No. 1 Cowden, NW NW Sec. 2, Blk. E, C. C. S. D. Sur. ... Rig.

Zweifel and others' No. 1 W. H. Cowden, SE SE Sec. 16, Blk X, C. C. S. D. Sur. ... Drilling by tools 2,810 ft.

CROCKETT COUNTY

Anchor Oil Co. (Cumberland) No. 1 Couch, C NE Sec. 18, Blk. QR, D. & S. E. T. R. R. Sur. ... Fighting cave 2,360 ft.

V. T. Bolin & Co.'s No. 1 P. C. Coates, NW cor. SW Sec. 4, Blk. 2, I. & G. N. Sur. ... Drilling 425 ft.

Geo. A. Henshaw, Jr., No. 1 University, 1,320 feet from S and W lines SW Sec. 5, Blk. 14, University Sur. ... Building rig.

J. K. Hughes' No. 2-B Powell, Sec. 63, E. L. & R. R. Sur. .. Fishing for 18 joints 8-in.; total depth 2,535 ft.

Magnolia Pet. Co.'s No. 2 Shannon, SE SE Sec. 9, Blk. BB, E. L. R. R. Sur. ... Hole full sulphur water 2,390 ft.; drilling 2,620 ft.

William Shaffer and others' No. 1 University, C SE SE Sec. 9, Blk. 47, University Sur. ... Total depth 2,344 ft.; plugged back to 2,208 ft.; shot 10 qts 2,170-95 ft.; shut down.

W. W. Donnelly, Young, Logan & Hult 's No. 1 Pierce, C SW Sec. 150, Blk. O. G. H. & S. A. Sur. ... Rig.

World Oil Co.'s No. 1 Schneeman, N and W SE cor. Sec. 57, Blk. BB, G. C. & S. F. Sur. ... Drilling 900 ft.

J. D. Young & Cromwell's No. 1 Shannon, SE NE Sec. 4, Blk. 10 ... Hole full sulphur water 2,550 ft.; drilling 2,620 ft.

Young & Cromwell's No. 1 University, C SE Sec. 23, Blk. 31, Univ. ... Top pay 1,160-65 ft.; shut down 1,365 ft.

CROSBY COUNTY

El Capitan Oil Co.'s No. 1 O. L. Slaton, NW cor. SW Sec. 5, Blk. B-9, E. L. & R. R. Sur. ... Shut down 1,050 ft.

CULBERSON COUNTY

James H. Gardner and others' No. 1 Radford, C SE Sec. 29, Blk. 62, Pub. Sch. Ld. Sur. ... Spudded 235 ft. and shut down.

DICKENS COUNTY

Bowser Mickels and others' No. 1 Pitchford ranch. ... Drilling 3,125 ft.

Moutray Oil Co. and Clancey & English's No. 1 Blackwell, C SE Sec. 406, Blk. 1, H. & G. N. Sur. ... Shut down 3,509 ft.

Moutray Oil Co. and Clancey & English's No. 1 Jones, SE cor. NW, Sec. 311, Blk. 1, H. & G. N. Sur. ... Shut down 3,550 ft.

FISHER COUNTY

Baldridge, Dillard & Clark's No. 1 Weler, George Great Sur. No. 221 ... Show gas and hole full water 2,200 ft.; water sand 2,320-68 ft.; small show oil in sandy lime 2,610-12 ft.; 600 ft. water in hole; drilling 3,000 ft.

Bourbon Royalty Co.'s No. 1 J. A. Danise, Sec. 6, Blk. K, T. & P. Sur. ... Location.

Marland Oil Co.'s (was Caldwell and others') No. 1 Rochelle, SW cor. NE Sec. 184, Blk. 3, T. & P. Sur. .. Drilling 2,240 ft.

California Co.'s No. 1 R. G. Anderson, Sec. 22, Blk. 20, T. & P. Sur. ... Hole full sulphur water 2,560 ft. and 2,801-12 ft.; drilling ahead 2,835 ft.

California Co.'s No. 1 Maggenheimer, SE cor. SW Sec. 15, Blk. 1, H. T. & B. Sur. ... Hole full sulphur water 2,826-2,937 ft.; underreaming 8-in. 2,945 ft.

Danciger Oil & Refg. Co.'s (F. P. Zoch and others') No. 1 Lanius, NE cor. SE Sec. 15, Blk. Y, P. T. & P. Sur. .. Underreaming casing 2,170 ft.

Hucony Gas Co.'s No. 1 Langford, SW SW Sec. 7, Blk. 21, T. & P. Sur. ... Straightreaming 2,055 ft.

Mason Oil Co.'s No. 1 W. A. Cross ... Straightreaming 300 ft.

R. W. Rainey and others No. 2 Marberry ... Shut down 2,526 ft.; flowing salt water.

Fred Phillips' No. 1 C. M. Webb, 756 ft. S and 1,050 ft. W NE cor. Sec. 2, Blk. K. ...

Stearns & Streeter's No. 1 W. A. Howe, N and E SW cor. N ESec. 12, Blk. 23, T. & P. Sur. ... Hole full salt water 2,220-40 ft.; shut down. Fishing 2,015 ft.

F. P. Zoch and others' No. 1 R. M. Clayton, C of W 160 ac. of irregular Sec. 1, J. W. Posey Sur. ... Odor gas 2,681-2,707 ft.; hole full salt water 2,712-55 ft.; drilling.

REAGAN COUNTY

Cope, Hagan and others' No. 1 White, C NE Sec. 8, Blk. 11, E. L. & R. R. Sur. ... Top salt 1,091 ft.; shut down 2,681 ft.

Hiawatha Oil Co.'s No. 1 University, C NL Sec. 8, Blk. 1, University ... Top salt 1,380 ft.; hole full sulphur water 3,605 ft.; drilling lime 4,030 ft.

Moody Oil Corp.'s No. 1 Sawyer, C Sec. 150, Blk. 1, T. & P. Sur. ... Top lime 2,520 ft.; show gas 2,575 ft.; 10 gal. oil 2,580 ft.; total depth 3,030 ft.; 300 ft. sulphur water; plugged back to 2,700 ft.; shot 120 qts. Feb. 5 at 2,580-2,685 ft.; 1,600 ft. sulphur water in hole; plugging to abandon.

REEVES COUNTY

Deep Rock Oil Co.'s No. 1 Caldwell, C SW Sec. 22, Blk. 58, T. & P. Sur., Twp. 8 ... Drilling 1,070 ft.

Grisham & Hunter's No. 1 State Land, C NW NW Sec. 23, Blk. 55, Pub. Sch. Ld. Sur. ... Hole full sulphur water 3,100 ft.; shut down 3,500 ft. for orders, contract depth.

Humble Oil & Ref. Co.'s No. 1-B Kloh, C NE Sec. 47, Blk. 56, T. & P. Sur., T-2-S ... Fishing 1,380 ft.

World Oil Co.'s No. 1 Biggs, C SE Sec. 65, Blk. 112, Pub. Sch. Ld. Sur. ... Fishing tools 1,810 ft.

RUNNELS COUNTY

Associated Pet. Co.'s (was Bell & Moore's) No. 1 W. W. King, 1,200 ft. W of NE cor. Lge. 14, J. V. Cobrera Sur. ... Spudded and shut down.

Moore & Bell's No. 1 Ferguson, 2,640 ft. S and 1,320 ft. E of NW cor. F. J. Ford Sur. No. 152 ... Rigging up.

Lou Ladd et al's (was Frank Yates') No. 1 R. M. McMillan ... Rigging up.

SCHLEICHER COUNTY

Beavers & Leath and others' No. 1 J. A. and W. T. Whitten, C NW Sec. 35, Blk. 11, T. O. Sur. ... Spudded and shut down.

Thomas Grey et al's No. 1 Ball Robinson, C NW Sec. 25, Blk. M, G. H. & S. A. Sur. ... Rig.

SCURRY COUNTY

Northwest Co.'s No. 1 T. C. Stinson, NE NW SW Sec. 101, Blk. 97, H. & T. C. Sur. ... Tested 8 bbls. 1,745 ft.; another pay at 3,402-07 ft. (corrected); bailed 70 bbls. oil in 4 hours and bailed dry; shut down 3,420 ft.

STERLING COUNTY

J. P. Williams' No. 1 Clark, NE NE SW Sec. 7, Blk. 8, G. C. & S. F. Sur. ... Fishing tools 730 ft.

TAYLOR COUNTY

City of Abilene's No. 1 fee, NW SW SE Sec. 66, Lunatic Asylum Land ... Shut down 2,264 ft.

Dorning & Perrine's No. 1 J. A. Hammer, center N 100 ac., Sec. 23, Blk. 19, T. & P. Sur. ... Rig.

Gibson & Johnson's No. 1 Haines & Hamilton, NE cor. W½ SE Sec. 38 ... Location.

Gibson & Johnson's No. 1 Hendry ... Drilling 1,140 ft.

Grisham & Hunter's No. 1 D. D. Huddleston, CWL Lot 29, League 146, Grimes Co. School Land ... Drilling 1,920 ft.

Halbert et al's No. 1 Hunt, C SE Sec. 124, Blk. 64, H. & T. C. Sur. ... Rigging up.

Midwest Expltn. Co.'s No. 1 Dora Smith, Jose Gabo Sur. .. Spudding.

Midwest Expltn. Co.'s No. 1 Toombes, Alex Thompson Sur. No. 37 ... Drilling 850 ft.

Noodle Creek Oil Co.'s No. 1 Mrs. Alice Rose, SW cor. NE Sec. 29, Blk. 19, T. & P. Sur. ... Rigged up and shut down.

Sanger Oil & Refining Co.'s No. 1 Cox ... Shut down 2,378 ft.; casing collapsed.

Sanger O. & P. Co.'s No. 1 Ike Brown, NE cor. Sec. 54, Blind Asylum Land ... Fishing casing 1,660 ft.

Sanger Oil & Refining Co.'s No. 1 Gillespie, Sec. 7, Lunatic Asylum Land ... Shot 40 qts. 1,835-75 ft.; trying to shut off water 2,670 ft.

World Oil Co.'s No. 1 J. R. Griffith ... Location.

TERRELL COUNTY

E. T. Williams and others' No. 1 Robertson, C NE Sec. 71, Blk. D-10, T. C. Sur. ... Shut down for casing 2,800 ft.; hole full of water.

TERRY COUNTY

Kingsland Oil & Potash Co.'s No. 1 Brownsfield, C NW SW SW Sec. 7, Blk. 1-A, E. L. R. R. Sur. ... Shut down 1,050 ft.

UPTON COUNTY

Beaty et al's No. 1 J. F. Lane ... Fishing tools 505 ft.

Dixie Oil Co.'s No. 10 Burleson, Sec. 100, T. C. Jones sur. .. Hole full of sulphur water from 2,300 ft.; drilling 3,285 ft.

W. W. Donnelly and others' No. 1 University, C SW Sec. 21, Blk. 4, University ... Drilling 1,265 ft.

Gulf Prod. Co.'s No. 4 Hughes ... Flowed 57 bbls. 2,086-92 ft.

Gulf Prod. Co.'s No. 1 Lane-C ... Flowed 65 bbls. in 3 hours 2,204-08 ft.

Gulf Production Co.'s No. 1 J. T. McElroy-B, C SW NE Sec. 187, Blk F. ... Rig.

Gulf Prod. Co.'s No. 1-C J. T. McElroy, C NW Sec. 134, Blk. E ... Drilling 3,025 ft.

Hults and others' No. 1 Giddings, C NW Sub. Sec. 12, Throckmorton Co. School Land ... Top salt 1,515 ft.; drilling 2,805 ft.

Humble O. & R. Co.'s No. 3 Ricker ... Moving in machine.

Independent Oil & Gas Co.'s No. 6 Burleson ... Shut down 360 ft.

Independent Oil & Gas Co.'s No. 12 Wooley ... Drilling 1,980 ft.

Independent Oil & Gas Co.'s No. 13 Wooley ... Drilling 2,045 ft.

Independent Oil & Gas Co.'s No. 14 Wooley ... Drilling 2,030 ft.

Marland Oil Co.'s No. 3 Burleson, T. C. Jones Sur. No. 100. First pay 2,205 ft.; second pay 2,295 ft.; 2,000 ft. sulphur water 3,390-95 ft.; drilling 3,894 ft.

Marland Oil Co.'s No. 34 Burleson, Sec. 100, T. C. Jones Sur. ... Shut down 3,255 ft.

Marland Oil Co.'s No. 3 Powell, Sec. 1, J. H. King Sur. .. Top salt 875 ft.; drilling 2,270 ft.

Marland Oil Co.'s No. 2 Benton Land, Julia Prater Sur. No. 1 ... Top salt 595 ft.; drilling 1,670 ft.

Marland Oil Co.'s No. 2 Gibbs ... Top salt 630 ft.; drilling 1,635 ft.

Marland Oil Co.'s No. 1-A Shirley ... Top salt 525 ft.; drilling 1,990 ft.

Sartain & Davis No. 1 Bull, SW NE Sec. 48, Blk. 41, T. & P. Sur. ... Rig burned 3,290 ft.; rebuilding.

Simms Oil Co.'s No. 2 Shirley ... Top salt 515 ft.; drilling 1,400 ft.

Simms Oil Co.'s No. 3 Shirley ... Drilling 1,905 ft.

Skelly Oil Co.'s No. 1 Jones, C SW Sec. 32, Blk. 41, T. & P. Sur., 1-4-S ... Fishing casing 3,595 ft.

Sun Oil Co.'s No. 8 Burleson, S of No. 3, T. C. Jones Sur. No. 100 ... Swabbed 60 bbls. in 3 hours 2,053-2,110 ft.; drilling.

Sun Oil Co.'s No. 1 Baker ... Rigging up.

The Texas Company's No. 20 King, Sec. 11, Blk. 3½ ... Drilling 2,523 ft.

The Texas Company's No. 21 King ... Top salt 770 ft.; drilling 1,825 ft.

The Texas Company's No. 22 King ... Swabbed 198 bbls. 2,125-38 ft.

The Texas Company's No. 23 King ... Digging cellar.

Texas Pacific C. & O. Co.'s No. 5 Sherk ... Swabbed 30 bbls. 2,148-96 ft.

Texon O. & L. Co.'s No. 1 Union Land, NW cor. NE Sec. 34, Blk. 1, M-K-T Sur. ... Held up temporarily.

Wentz Oil Corp.'s No. 4 Sherk ... Drilling 2,000 ft.

VAL VERDE COUNTY

A. Blume and others' No. 1 Moore estate, Sec. 183, J. Mitchell Sur. ... Shut down 3,000 ft.

Curso Williams' No. 1 Holman, NE NE Sec. 5, Blk. N, G. H. & S. A. Sur. ... Shut down 2,270 ft.

Douglas Oil Co.'s No. 1 Sellars, C SE Sec. 82, Blk. A, I. & G. N. Sur. ... Shut down 2,180 ft.

East Del Rio Oil Co.'s No. 1 Russell, E. cor. Sec. 183, Del Rio Town Sur. ... Shut down 3,142 ft.

Hiawatha Oil Co.'s No. 1 Sellars, C Sec. 1,031, Blk. A, I. & G. N. Sur. ... Shut down 2,455 ft.; hole full salt water.

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I. & G. N. Sur. ... Shut down 3,750 ft.

O. O. Owens' No. 1 Mills ... Drilling 500 ft.

Transcontinental Oil Co.'s No. 1 W. S. Stevenson, NE SE NE Sec. 3, Blk. 4, I. & G. N. Sur. ... Drilling 3,955 ft.

WARD COUNTY

Marland Oil Co.'s No. 1 J. Sealey, C SE Sec. 78, Blk. A, G. M. M. & A. Sur. ... Spudded and shut down.

WINKLER COUNTY

Gibson & Johnson's No. 2 R. A. Lock, 1,320 ft. W of NE cor. Sec. 30, Blk. 74, NW of discovery well ... Location.

Gulf Prod. Co.'s No. 1 T. G. Hendricks, NW cor. Sec. 34, Blk. B-5, Pub. Sch. Ld. ... Total depth 1,625 ft.; straightreaming.

Champlin Oil & Ref. Co.'s No. 1 C. W. Cowden, C SW Sec. 21, Blk. C-23, Pub. Sch. Ld. ... Drilling 575 ft.

McCullough Oil Co.'s No. 1 Tobe Martin, CEL Sec. 20, Blk. B-12, Pub. Sch. Ld. ... Drilling 650 ft.

R. S. Matthews and others' No. 1 State, C Sec. 7, Blk. A-57, Pub. Sch. Ld. Sur. ... Fishing tools 1,225 ft.

Independent Oil & Gas Co.'s No. 1 Hendricks, Sec. 42, Blk B-5, Pub. Sch. Ld. ... Running 12-in. 1,004 ft.

F. P. Zoch and others' No. 1 John Sealy, C SW Sec. 73, Blk A. G. M. M. & A. Sur. ... Top salt 1,062 ft.; top lime 2,300 ft.; 150 ft. oil 2,216-17½ ft.; 2,800 ft. salt water 2,268 ft.; total depth 3,530 ft.; underreaming 6-in.

L. D. Ladd, Hill and others' No. 1 Amburgey, C Sec. 24, Blk. B-7, Pub. Sch. Ld. Sur. ... Top salt 1,220 ft; drilling 2,320 ft.

Pure Oil Co.'s No. 1 Hendricks, SW cor. Sec. 41, Blk. B-5, Pub. Sch. Ld. ... Location.

Skelly Oil Co.'s No. 1 M. M. Leeman ... Rigging up.

Southern Crude Oil Purchasing Co.'s No. 2 Hendricks, NE cor. Sec. 32, Blk. B-5, Public School ... Rotary; top salt 1,910 ft.; drilling 2,000 ft.

Southern Crude Oil Purchasing Co.'s No. 3 Hendricks, Sec. 33, Blk. B-5 ... Rotary rig.

Llano Oil Co.'s No. 1 Scarborough, center Sec. 1, Blk. C-22, Pub. Sch. Ld. ... Drilling 800 ft.

Humble O. & R. Co.'s No. 1 T. G. Hendricks ... Drilling water well.

Humble O. & R. Co.'s No. 1 T. G. Hendricks, S and W NE cor. W ½ NE Sec. 33, Blk. B-5, Public School Land ... Location.

WOARD COUNTY

Humble O. & R. and Navarro Oil Co.'s No. 1 L. McAdams, C S ½ Sec. 27, Blk. L, S. P. Sur. ... Underreaming casing 1,575 ft.

GARZA COUNTY

Emerald Oil Co.'s No. 1-A Connell ... Shut down 3,215 ft.

Emerald Oil Co.'s No. 2 Connell ... Rigging up.

Emerald Oil Co.'s No. 1 D. Boren ... Rigging up.

Pandem Oil Co.'s No. 1 Justice ... Rig.

GLASSCOCK COUNTY

Mascho & Marland Oil Co.'s No. 1 Calder, C NW Sec. 20, Blk. 32, T. & P. Twp. 4-S Sur. ... Top lime 2,265 ft.; hole full sulphur water 3,175 ft. and 3,340 ft.; shut down for orders 3,500 ft.

J. S. Meriwether's No. 1 L. S. McDowell, C SW Sec. 43, Blk. 34, Twp. 2-S, T. & P. Sur. ... Location.

R. R. Penn et al's No. 1 W. P. Edwards, C SE Sec. 11, Blk. 34, Twp. 2-S, T. & P. Sur. ... Location.

Plateau Oil Co.'s No. 1 L. S. Bell, C SW Sec. 11, Blk. 35, T. & P. Twp. 5-S Sur. ... Drilling by tools 1,940 ft.; total depth 2,270 ft.

Texon Oil & Land and Marland Oil Co.'s No. 1 W. R. Settles, Sec. 160, Blk. 29, W. & N. W. Sur. ... Total depth 1,005 ft.; cleaning out.

HALL COUNTY

Seifert and others' No. 1 Owens, C NE Sec. 179, Blk. S-5, Dennison & Pacific Sur. ... Rigging up.

HOCKLEY COUNTY

El Capitan Oil Co.'s No. 1 Ellwood, SW cor. Sec. 55, Blk. A, R. M. Thompson Sur., 18 miles NW of Lubbock. ... Total depth 1,900 ft.; straight-reaming.

HOWARD COUNTY

Fred Carey et al's No. 1 G. O. Chalk, SE NW Sec. 124, Blk. 29 ... Spudding.
Comet Pet. Co.'s No. 1 H. R. Clay, S and E NW cor. Sec. 154, Blk. 29, W. & N. W. Sur. ... Rotary; spudding.
Dixie Oil Co.'s No. 1 H. R. Clay, S and E NW cor. Sec. 154, Blk. 29, W. & N. W. Sur. ... Rotary rig; rigging up.
Francis & Brunson's No. 1 J. W. Furrh, C SW Sec. 11, Blk. 31, T. & P. Sur., T-1-S ... Location.
Gulf Prod. Co.'s No. 2 Otis Chalk, Sec. 94, Blk. 29 ... Run 8-in. 970 ft.
Reeves & Apperman's No. 1 H. R. Clay, SW cor. SE SE Sec. 126, Blk. 29 ... Top pay 1,776-80 ft.; flowing average 80 bbls. daily.
Marland Oil Co.'s No. 1 J. B. Harding, C SE Sec. 19, Blk 33, T. & P. Sur. ... Rotary; shut down 535 ft.
Marland Oil Co.'s No. 1 Bryse, C SW Sec. 35, Blk. 34, T. & P. Sur., Tp. 1-S ... Top salt 1,285 ft.; drilling 3,230 ft.
Bristow & Merrick's No. 1 A. J. Hooks ... Spudded with spudded and shut down.
L. C. Harrison et al's No. 1 Dora Roberts ... Location.
Humble O. & R. Co.'s No. 2 E. W. Douthit ... Drilling 980 ft.
Magnolia Pet. Co.'s No. 1 Molly Clark ... Rigging up.
Magnolia Pet. Co.'s No. 1 Sloan Creek ... Rigging up machine.

IRION COUNTY

Cash Dollar et al's No. 1 Abe Mayer, C NE Sec. 1, Blk. 10, S. P. R. R. Sur. ... Shut down 1,670 ft.
Cash Dollar et als No. 1 G. J. Bird, NE Sec. 16, Blk. 10, S. P. R. R. Sur. ... Shut down 950 ft.

JEFF DAVIS COUNTY

Humble Oil & Ref. Co.'s No. 1 W. W. McCutcheon, Sec. 11, Blk. 344, G. C. & S. F. Sur. ... Fishing 6-in. 3,440 ft.
J. K. Hughes Dev. Co.'s No. J. Z. Means, 600 ft. from N line and 2,000 ft. from W line of M. Robinson Sur. No. 1 ... Shut down 1,580 ft.

JONES COUNTY

Bateman & Campbell's No. 1 Southard, C NW NW Sec. 43, Deaf & Dumb Asylum Lands ... Drilling 1,650 ft.
Consolidated Oil Co.'s No. 1 Armand & Taylor, C S½ SW Sec. 7, Blk. 4, H. & T. C. Sur. ... Location.
Garland & Diamond's No. 1 E. D. Glynn, SE cor. Sec. 18, Deaf & Dumb Asylum Lands ... Location.
Gibson & Johnson's No. 1 Largent, C SE Sec. 50, Blk. 149, Dewitt Co. School Land ... Shut down 2,302 ft.
Gillette & Hickey & Cowboy Evans' No. 1 S. W. King, Manuel Bueno Sur., No. 197 ... Good show oil 2,070 ft.; no gas; recovered tools; underreaming.
Gillette & Hickey's No. 1 M. E. Young, Tevanio Sur. No. 190. Shut down 1,200 ft.
Grisham & Hunter & Wildman's No. 1 George B. Birchfield, Harrison Co. School Land ... Underreaming casing 2,256 ft.
Grisham & Hunter & Wildman's No. 1 Williams, Harrison Co. School Land ... Total depth 2,080 ft.; underreaming casing.
Hart & Cole's No. 1 Cranston, Sec. 10, Blk. 17, T. & P. Sur. ... Drilling 2,400 ft.
Hurley Oil Co.'s No. 2 John Sears ... Fighting cave 860 ft.
Hutson & Weaver's No. 1 Smith, Sec. 51, Blk. 18, T. & P. Sur. ... Spudded and shut down.
Marland Oil Co.'s No. 1 S. R. Cox, NW cor. Sec. 72, Blk. 14, T. & P. Sur. ... Hole full salt water 3,529 ft.; ½ bailer oil and 2 bailers water per hour 3,672-75 ft.; shut down.
Marland Oil Co.'s No. 1 Larson, C SE NE Sec. 188, B. B. D. & C. Sur. ... Drilling 965 ft.
Marland Oil Co.'s No. 2 Mason, NE cor. SE NE Sec. 18, Blk. 19, T. & P. Sur. ... Small showing oil 2,493 ft. and 2,516-30 ft.; hole full water 2,823 ft. and 2,875-93 ft.; small show oil 2,928 ft.; swabbed 60 bbls. oil and 20 bbls. water Feb. 15 at 3,036-39 ft.
Marston Oil Co.'s No. 1 E. Howell, NW cor. SE W ½ of N 400 ac., Sec. 20, Blk 19, T. & P. Sur. ... Drilling 1,120 ft.
Mid-Continent Petroleum Corp.'s No. 1 H. Evans, NE cor. SE SE Sec. 44, S. P. R. R. Sur. ... Drilling 800 ft.
Midwest Exploration Co.'s No. 3 Thornton, Sec. 18, Blk. 9, T. & P. Sur. ... Rigging up.
Midwest Exploration Co.'s No. 4 Thornton ... Spudding.
Victor H. Martin's No. 1 Culbertson, Vincent Bell Sur., No. 6. Set 8-in. 2,560 ft.; shut down.
Muse & Robertson & Cowboy Evans' No. 1 Manly, C S½ S½ Sec. 35, Blk. 14, T. & P. Sur. ... 250,000 ft. dry gas, no oil 1,640 ft.; underreaming 1,710 ft.
Phillips Pet. Co.'s No. 1 R. M. Beasley ... Drilling 1,435 ft.
Phillips Pet. Co.'s No. 1 Mason, N and W SE cor. NE Sec. 18, Blk. 19 ... Drilling 1,025 ft.
Phillips Pet. Co.'s No. 1 Thornton ... Drilling 1,945 ft.; 6 bbls. water 1,930-45 ft.
Phillips Pet. Co.'s No. 2 Walling ... Drilling 1,800 ft.
Phillips Pet. Co.'s No. 3 Walling, N and E SW cor. Sec. 19, Blk. 19, T. & P. Sur. ... Drilling 375 ft.
Phillips No. 3 Joe Winters ... Rig.
Shaw & Rathke and others' No. 1 Bristow, SE SE Sec. 1, J. H. Gibson Sur. ... Shut down 500 ft.
W. G. Stough and others' No. 1 J. P. Willis ... Shut down 730 ft.; repairing spudder.
Stebbins Oil Co.'s No. 1 J. M. Higgs ... Fishing tools 855 ft.
Swensondale Oil Co.'s No. 1 Canton, SW NW Sec. 9, Deaf and Dumb Asylum Lands ... Building rig.
World Oil Co. and others' No. 1 A. W. Clark, SE cor. Sec. 15, Blk. 19, T. & P. Sur. ... Hole full salt water 1,975-2,010 ft more salt water 2,305 ft.; slight show oil 2,425-36 ft.; drilling 2,567 ft.
World Oil Co.'s No. 1 W. H. Lee, 5,400 ft. N and 2,300 ft. E of SW cor. J. W. McKissick Sur. ... Underreaming casing 1,055 ft.
Zeigler and others' No. 1 Reeves, C SE SE Sec. 164, B. B. B. & C. Sur. ... Underreaming casing 915 ft.

KIMBLE COUNTY

Dixie Oil Co.'s No. 1 Harrison, 900 ft. N NE 40 cor. S 300 ft., No. 80 Sur. ... Fishing 3,035 ft.

KING COUNTY

Hoffer Oil Co.'s No. 1 F. Patton ... Skidded rig; rigging up.

LAMB COUNTY

E. C. Marrs et al's No. 1 Yellowhouse, N line Labor 3, League 697, State Capitol Lds. ... Shut down 3,500 ft.

LUBBOCK COUNTY

Sam Arnett and others' No. 1 Bowles Ranch ... Spudded 115 ft.

LYNN COUNTY

The Hart Oil Corp.'s No. 1 C. O. Edwards, NW NW Sec. 5, Blk. 2 ... Shut down 1,400 ft.

MENARD COUNTY

J. R. Lewis and others' No. 1 White, C NW Sec. 4, J. Mabrey Sur. ... Shut down 415 ft.
Clark and others' No. 1 Kothman, NW NW Sec. 77, Kulman Sur. ... Drilling 440 ft.

MITCHELL COUNTY

Eastlan dOil Co.'s No. 2 C. M. Adams ... Spudding.
California Co.'s No. 1 W. H. Butler, Lease 2 ... Fishing at 2,100 ft.
California Co.'s No. 1 E. Morrison, Lease 1 ... Moving in material.
Texas & Stivers' No. 1 Hardee, SE SE Sec. 85, Blk. 97, H. & T. C. Sur. ... Drilling 2,410 ft.
Texas & Stivers' No. 1 Dowlin, NW cor. Sec. 11, Blk. 27, T. & P. Sur. ... Rig.
B. H. Cogdell's No. 1-C F. E. McKenzie, WL NW NE Sec. 226, Blk. 1-A, H. & T. C. Sur ... Shut down 125 ft.
Owen & Sloan's No. 1 C. P. Conoway, C NE Sec. 30, Blk. 28, Twp. 1-S Sur. ... Shut down 3,310 ft.
Morrison & Thompson's No. 1 Griffith, SE SE Sec. 45, Blk. 29, T. & P. Sur. ... Shut down for water 2,100 ft.
B. E. Walter and others' No. 1 J. E. Dollen, NW cor. SW Sec. 11, Blk. 27, T. & P. Sur. ... Drilling 2,425 ft.
Riley & Donnelly's No. 1 R. H. Crump, CSL Sec. 91, Blk. 27, T. & P. Sur., T-1-S ... Location.
J. C. Yancey's No. 1 Saunders, 400 ft. N and 1,700 ft. E of SW cor. Sec. 25, Blk. 25, T. & P. Sur. ... Core drill on location.

MOTLEY COUNTY

Chechaco Oil Co.'s (J. W. Pennington et al of Amarillo) No. 1 J. W. Owens, NW cor. Sec. 26, Blk. 4 (15,000-acre solid block) ... Shut down 1,650 ft.

NOLAN COUNTY

A. G. Malone et al's No. 1 J. B. Carlyle ... Spudding.
Peters et al's No. 1 Booth ... Rig.
Stein & Greeben's No. 1 L. W. Ross ... Location.
Thomas & Reynold's No. 1 Allen, C W ½ NW Sec. 58, Blk. X, T. & P. Sur. ... Building rig.
Walford et al's No. 1 H. D. Simpson ... Location.
McClesky and others' No. 1 Pepper, SE cor. SW Sec. 29, Blk. 22, T. & P. Sur. ... Rig on ground.
Zweifel and others' No. 1 Longbotham, C SE Sec. 130, Blk. 1, H. & G. N. Sur. ... Shut down 650 ft.; drilling water well.

PARMER COUNTY

Humble O. & R. Co.'s No. 1 Farwell ... Shut down for casing 1,210 ft.

PECOS COUNTY

Benedum & Trees' No. 1 J. C. Trees, C Sec. 50, Blk. 8 ... Run. 8-in. 2,340 ft.
Buell and others' No. 1 Hagan, C N half NE Sec. 89, Blk. OW, G. C. & S. F. Sur. ... Drilling 1,800 ft.
Buell & Hagan's No. 1 McKenzie Sec. 8, Blk. 604, Mrs. A. L. Canon Sur. ... Location.
Buell & Hagan's No. 1 University, C N ½ SE Sec. 31, Blk. 24 ... Drilling 2,260 ft.
California Co.'s No. 1 Union Land Co., 1,650 ft. N and 990 ft. E of most northerly SW cor. Sec. 8, Blk 110, T. C. R. R. Sur. ... Rig and tools.
Cromwell & Kimberlin's No. 1 Blackman, C NW Sec. 24, Blk. 3, H. & T. C. Sur. ... Shut down 380 ft.
Kirby Oil Co.'s No. 1 Rheinstrom, C NE SW Sec. 30, Blk. 2, H. & T. C. Sur. ... Spudding 100 ft.
Kimberlin & Pickrell's No. 1 Yates, C Sec. 55, Blk. 1, I. & G. N. Sur. ... Top pay 1,268 ft.; swabbed 35 bbls.; drilling 1,280 ft.
Del Rio Drilling Synd.'s No. 1 K. C. & Ft. Stockton, C SW Sec. 19, Blk. 178, T. C. Sur. ... Shut down 740 ft.
Kershaw & Livingston's No. 1 Cannon, SW cor. NE Sec. 54, Blk. A-2, T. C. R. R. Sur. ... Shut down 175 ft.
Mid-Kansas-Transcontinental's No. 2 Yates, 2900 ft. W of SW cor. Sec. 60, Blk. 1, I. & G. N. Sur. ... Flowing average 3,480 bbls. 999-1,002 ft. Set 10-in. 914 ft.; drilling.
Mid-Kansas O. & G. Co.'s No. 3 Yates, W of SW cor. Sec. 60, Blk. 1, I. & G. N. Sur. and loc. in J. Yates Sur. ... Drilling 825 ft.
Quinby Oil Co.'s No. 1 Townsite, Sec. 1, Blk. 267, Client Addition Sur. Ft. Stockton ... Shut down for casing 3,440 ft.
Quinby Oil Co.'s No. 2 Bennett, C NW Sec. 592, Blk. 105, G. C. & S. F. Sur. ... Shut down 1,280 ft.; 200 ft. oil in hole from 1,216 ft.

CALIFORNIA MARKET CONSUMPTION SLUMP

LOS ANGELES, Calif., Feb. 19.—There has been a decided slump in the domestic consumption of motor gasoline during the past week, due to the heavy rainstorm general throughout California, which has not only kept many motorists inside, but has washed out bridges, tieing up traffic and making automobile travel dangerous. Until this storm clears, no improvement in domestic gasoline consumption is expected.

Exports of California oils to the Atlantic seaboard and to Atlantic foreign ports registered an improvement. Atlantic domestic trade took 147,198 bbls. of fuel oil and 223,407 bbls. of gasoline, making a total of 370,605 bbls., which is about 30,000 bbls. more than was consumed in this trade during the week previous. The rather large movement of gasoline to the East is gratifying to local marketers, because, due to tanker shortage, the price for shipping gasoline East has been increased, and the demand for California gasoline is sufficient to bring a price that continues to make this business profitable for the California companies. During the same period, European ports took 231,507 bbls. of fuel oil and 143,000 bbls. of gasoline. This is a total of 374,507 bbls., as compared with a little over 350,000 bbls. shipped last week.

The shipment of gasoline to Europe this year, however, has been a disappointment. In previous year, this has been the period at which the requirements of Great Britain, in particular, has been satisfied to a large extent by California gasoline, but to date this does not seem to be the case. It is thought in some quarters the severe shortage of tank bottoms is at least in part responsible.

The demand for fuel oil continues reasonably strong. During the past week, especially, there has been great volume of this commodity leaving Los Angeles harbor, and the present weather undoubtedly has a strengthening effect on the domestic market. In spite of this improvement, fuel oil prices are soft. The weak situation is due almost entirely to the sales made by the smaller refiners, who sell a great deal in spot lots, and who, consequently, are forced to cut prices to unload their stocks at certain periods.

LEWIS D. PERRINE

BUTLER, Pa., Feb. 19. — Lewis D. Perrine, aged 82 years, one of the pioneer oil men of the Pithole Creek excitement, died at his home here this week. In 1865 he followed the oil business into the Thorn Creek Field and was active in the St. Joe and Cooperstown Fields. He was an oil producer the major portion of his life.

HURT BY EXPLOSION

WICHITA FALLS, Tex., Feb. 19.—A. J. Gafford, 49, of Electra, suffered a double fracture of the leg when struck by a piece of steel following the explosion of an oil well on the Rio Bravo lease, 3 miles south of Electra. Gafford was supervising the pulling of the crank shaft on a 25 horse power engine, when a leaking valve caused the explosion.

INCREASES CAPITAL STOCK

The Galer Oil Co. of Tulsa, organized in 1925 by R. M. Galer, Harry H. Nowlin and Fred T. Haddock, recently increased its capital stock from $250,000 to $500,000. The company deals in oil royalties.

CORE DRILL TESTS

SAN ANTONIO, Tex., Feb. 19.—National Potash Co. will core drill on the J. N. Ross ranch, 65 miles south of San Angelo, in Sutton County, to prospect a block of 12,000 acres for potash, oil or gas. A. P. Lundin of New York is president, and Dr. David Flood of San Antonio is in charge of the geological work.

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Numerous Phases to Sulphur Problem

Experiments Show Results Obtained, Including Corrosion and Color Effects, With Different Chemicals. Need More Research

By A. E. Wood*
Mississippi College, Clinton, Miss.

All crude petroleum contains sulphur in amounts varying from traces to more than 4 per cent. In general, the heavier and more asphaltic oils contain larger percentages. On distillation the sulphur compounds present in the crude oil distribute themselves in all the fractions, but usually the larger proportions are found in the heavier fractions. In cracking operations the sulphur compounds present in the distillate frequently undergo changes. A sweet and non-corrosive distillate may become sour and corrosive during the cracking process.

There is much speculation on the nature of the sulphur compounds actually present in crude petroleum and petroleum distillates. A number of investigators have worked on this problem. Much of this work was done many years ago, and in the light of our present information the conclusions in many cases are not as convincing as one could well wish. Elementary sulphur, hydrogen sulphide, alkyl sulphides, mercaptans, thiophenes, thiophanes and carbon disulphide have been reported in certain petroleum distillates and residues. Sulphonic acids and alkyl sulphates are sometimes present in acid-treated distillates. Alkyl disulphides are sometimes produced in certain refining operations. Sulphones and possibly sulphoxides are also produced in certain refining operations.

The purpose of this paper is to give a brief summary of the results of a series of experiments carried out in this laboratory along with some suggestions as to further research. In the discussions which follow, the reader is referred to the indicated references for the details of method, manipulation, etc.

1. Action of Petroleum-Refining Agents on Naphtha Solutions of Elementary Sulphur and Sulphur Compounds.[1,2,3]

Summary of Results

The purpose of these experiments was to determine, if possible, the action of the more commonly used petroleum-refining agents on naphtha solutions of elementary sulphur and certain sulphur compounds likely to occur in petroleum. The refining agents investigated included sodium hypochlorite, sulphuric acid, sodium plumbite (doctor solution), sodium hydroxide, silica gel, fuller's earth, aluminum oxide, copper oxide and aluminum chloride.

The results are tabulated in Table 1.

The results in Table 1 indicate that none of the refining-agents used were effective with all types of sulphur compounds employed. Sulphuric acid was the most effective general desulphurizing agent. Sodium plumbite (doctor solution) removed hydrogen sulphide and in the presence of elementary sulphur converted the mercaptan to the corresponding alkyl disulphide and is consequently an effective sweetening agent. Silica gel is in general a better desulphurizing agent than either fuller's earth or aluminum oxide. Sodium hypochlorite, copper oxide and aluminum chloride were not included in the table. Sodium hypochloride was found to be a good sweetening agent as ordinarily used in the industry.

However, the desulphurizing effect of sodium hypochlorite is dependent on a number of factors, such as the per cent of alkalinity of the hypochlorite solution, the volume-ratio and intensity of treatment, and the type and molecular weight of the sulphur compounds present. Copper oxide (Frasch process) destroys mercaptans and has been effectively used on distillates like those from Lima, Ohio, which contained appreciable quantities of this particular sulphur compound. Aluminum chloride at ordinary temperatures forms additional compounds with a number of the sulphur compounds investigated; but on heating the sulphur compounds are decomposed, hydrogen sulphide being one of the products formed.

These results also indicate that hydrogen sulphide and mercaptans are the sulphur compounds which make a distillate "sour" to the sodium plumbite or "doctor test." None of the refining agents investigated is effective in removing elementary sulphur. Elementary sulphur is very corrosive to the copper-dish or the copper-strip corrosion tests and its removal is necessary where corrosion specifications are involved. Elementary sulphur can be removed by treatment with a lead mercaptide solution and also by treatment with a sodium hydroxide solution which contains appreciable quantities of sodium sulphide.

Corrosion Effects

2. Corrision Effects of Naphtha Solutions of Elementary Sulphur and Sulphur Compounds.[4]

A series of corrosion experiments were undertaken to determine the corrosive properties of elementary sulphur and sulphur compounds when dissolved in naphtha. The following metals and alloys were employed: Magnesium, aluminum, manganese, zinc, chromium, iron, cobalt, nickel, tin, lead, solder, antimony, copper, brass, mercury and silver.

The following general results were obtained with naphtha solutions of elementary sulphur and sulphur compounds:

(a) Mercaptans exhibited the widest range of reactivity forming the corresponding metal mercaptides with cobalt, nickel, lead, lead alloys, antimony, copper, copper alloys, mercury and silver. These mercaptides decompose on moderate heating, forming the corresponding metal sulphides and alkyl sulphides.

(b) Hydrogen sulphide was next in order of reactivity, forming the corresponding metal sulphides with iron, lead, lead alloys, antimony, copper, copper alloys, mercury and silver.

(c) Elementary sulphur was highly corrosive to copper, mercury and silver, forming the corresponding metal sulphides. Elementary sulphur was not markedly corrosive to any of the other metals investigated.

(d) In the absence of water, alkyl sulphates and sulphonic acids were not markedly corrosive to any of the metals investigated.

(e) Alkyl disulphides, alkyl sulphides, sulphones, sulphoxides, thiophene and carbon disulphide were not markedly corrosive.

(f) The presence of water in appreciable amounts increased markedly the corrosive action of naphtha solutions of mercaptans, hydrogen sulphide, alkyl sulphates and sulphonic acids. The ionization of these compounds in water solutions results in an increased activity.

(g) Heat in moderate amounts was found to increase the corrosion effects.

(h) Among the metals investigated, copper, silver and mercury were most widely affected. Chromium and tin were least affected.

Color Effects

3. Color Effects of Elementary Sulphur and Sulphur Compounds on Naphtha.

A series of color experiments is now in progress. The object of these experiments is to determine the tendency of sulphur and sulphur compounds to produce color in petroleum distillates. A detailed report of this work will be made later. The work thus far seems to indicate that sulphur plays a very minor role in color formation and that color formation is due largely to factors other than sulphur.

Further Research Needed

The present status of our knowledge of sulphur in petroleum is unsatisfactory and fundamental research is needed on all phases of the problem. The following are offered as indicating possible lines of attack.

(a) Isolation of Sulphur Compounds.

A comprehensive study of all tangible methods for the separation and recovery of individual sulphur compounds present in petroleum. After the separation and identification of a pure sulphur compound the next step would be to compile all the available physical and chemical data concerning it, especially with reference to the more commonly used petroleum-refining agents.

(b) Physical and Chemical Properties of Sulphur Compounds.

A comprehensive study of the physical and chemical action of a selected number of sulphur compounds with a wide range of judiciously selected heavy chemicals in the hope of finding better treating methods or better methods of testing and identification.

(c) Qualitative Methods.

A comprehensive study of all tangible methods for detecting type sulphur compounds present in petroleum distillates.

(d) Quantitative Methods.

A comprehensive study of all tangible methods for quantitatively estimating type sulphur compounds present in petroleum.

(e) Service Tests.

A comprehensive series of experiments to determine the maximum limits of sulphur permissible in petroleum distillate without undue injury to motors, machinery, equipment, etc.

The recently inaugurated research program of the American Petroleum Institute contemplates work on several important phases of the sulphur problem and should yield results of material benefit to the industry.

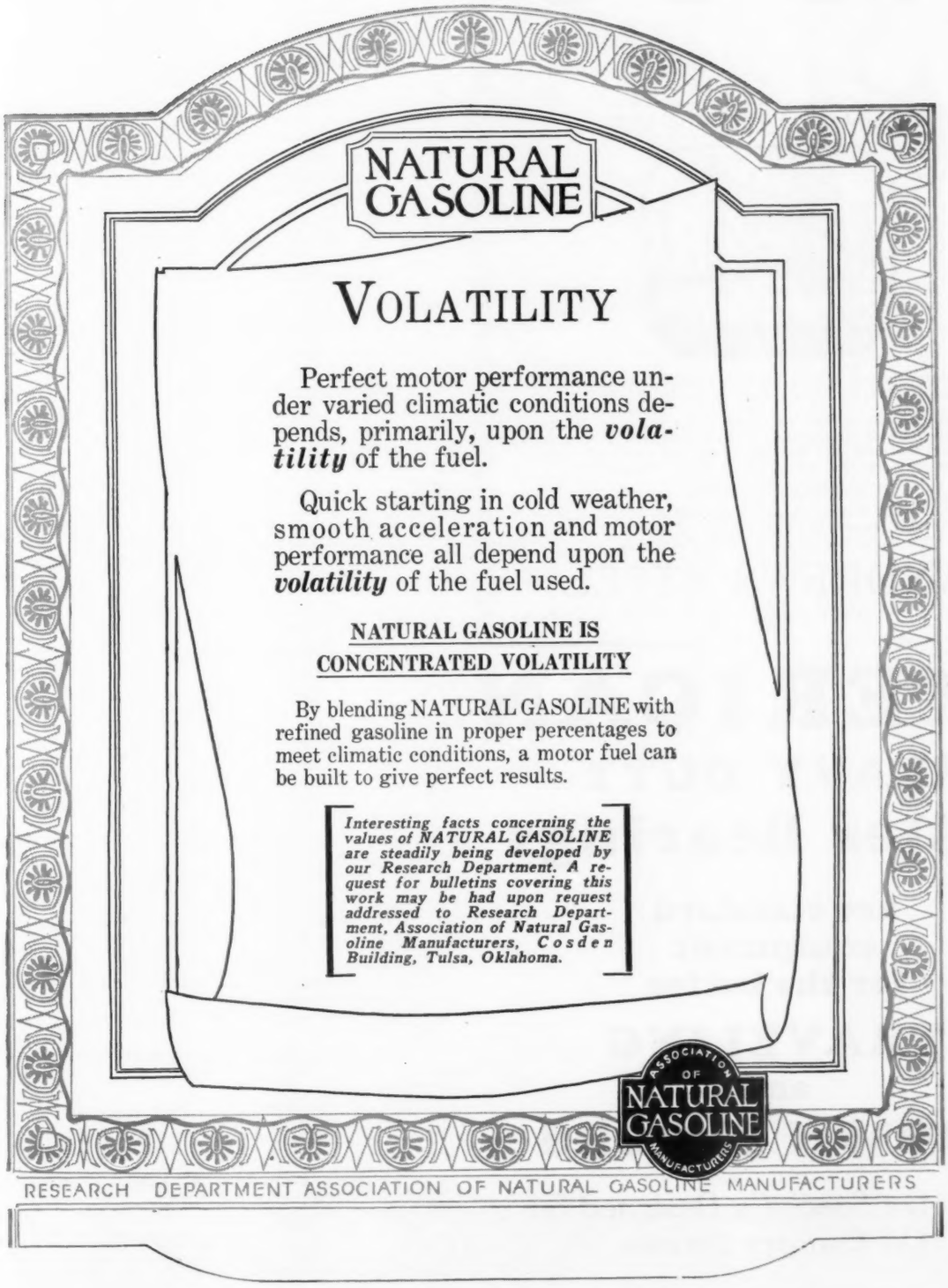
The writer wishes to acknowledge his indebtedness to the following technical articles:

1. "The Chemistry of Sweetening in the Petroleum Industry," by Wendt and Diggs; Ind. Eng. Chem., 16, 1113 (1924).
2. "The Chemistry of Petroleum," by Birch and Norris; J. Chem. Soc. (London), 127, 1934 (1925).
3. "The Desulphurization of Crude Oil Distillates by Means of Hypochlorite,"
(Continued on Page 158)

*Presented at New York meeting, A. I. M. E., February 14-17, 1927.
[1]Wood, Lowy, Faragher; Ind. Eng. Chem., 16, 1116 (1924).
[2]Wood, Sheely, Trusty; Ind. Eng. Chem., 18, 169 (1926).
[3]Wood, Greene, Provine; Ind. Eng. Chem., 18, 823 (1926).
[4]Wood, Sheely, Trusty; Ind. Eng. Chem., 17, 798 (1925).

TABLE 1
Effects of Refining Agents on Naphtha Solutions of Sulphur and Sulphur Compounds

Naphtha Solution—	Desulphurizing Sulphuric Acid: Fuming	66 Be.	53 Be.	Na_2PbO_2	Na_2PbO_2+S	NaOH	Silica Gel	Fuller's Earth	Al_2O_3
Free sulphur	None	None	None	None	None	None	None	None	None
Isoamyl mercaptan	Removes as disulphides	Removes as disulphides	None	Removes partially as lead mercaptides	Forms naphtha solution of disulphides	Removes partially as sodium mercaptides	Removes fairly well	None	Removes sparingly
Hydrogen sulphide	Forms naphtha solution of free sulphur	Forms naphtha solution of free sulphur	No oxidation to free sulphur	Removes as PbS	Removes as PbS	Removes as Na_2S	None	None	Removes sparingly
Dimethyl sulphate	Removes readily	Removes readily	Removes fairly well	Removes as $PbSO_4$	Removes as$PbSO_4$	Removes as Na_2SO_4	Removes	Removes	Removes sparingly
Methyl p-toluene-sulphonate	Removes readily	Removes fairly well	None	None	None	None	Removes fairly well		
Carbon disulphide	None	None	None	None	None	None	None	None	None
n-Butyl sulphide	Removes readily	Removes	None	None	None	None	Removes partially	None	None
n-Propyl disulphide	Removes readily	Removes fairly well	None	None	None	None	Removes partially	Removes sparingly	None
Thiophene	Removes as thiophene-sulphonic acid	Removes as thiophene-sulphonic acid	None	None	None	None	None	None	None
Diphenyl sulphoxide	Removes readily	Removes	Removes fairly well	None	None	None	Removes	Removes	Removes sparingly
n-Butyl sulphone	Removes readily	Removes	Removes fairly well	None	None	None	Removes	Removes	Removes sparingly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PREDICTS PRICE OF PETROLEUM PRODUCTS WILL RISE MORE RAPIDLY

By Arthur Knapp*
Petroleum Engineer, United Gas Improvement Co.

The cost of petroleum products for the production of heat has compared favorably with other energy sources up to 1926. Since consumption has now overtaken production of petroleum, the rise in the price of petroleum products will be more rapid in the future.

The figures in Table 2 are the relative prices of latent energy. The relative cost of useful work depends upon the efficiency of the transformation of this energy into useful work. Rapid strides are being made with all sources of energy and with the development of new forms of energy in intermediate stages between the original coal or petroleum and the transforming engine. These are known as synthetic fuels. The future possibilities for the more efficient use of all forms of energy are very great. We can scarcely guess which path of development will lead to the greatest economy of transformation and what will be the ultimate form of fuel and engine or the ultimate economy in use.

TABLE 1

Per Cent of Total B.t.u. Equivalent Contributed by the Several Mineral Fuels in the United States.

Year	Anthracite	Bituminous	Total Coal	Domestic Oil	Natural Gas	Imported Oil	Total Oil and Gas	Grand total Fuels	Water Power Pct. of Fuels[1]
1819	100.0	....	100.0	....	....	....	....	100.0	No data
1829	58.4	41.6	100.0	....	....	....	....	100.0	"
1839	40.2	59.8	100.0	....	....	....	....	100.0	"
1849	62.8	37.2	100.0	....	....	....	....	100.0	"
1859	62.3	37.7	100.0	[2].....	....	....	....	100.0	"
1869	51.3	45.9	97.2	2.8	[2].....	....	2.8	100.0	"
1879	42.5	51.3	93.8	6.2	[2].....	....	6.2	100.0	"
1889	29.3	59.3	88.6	5.0	[3]6.4	....	11.4	100.0	2.3
1899	22.5	69.5	92.0	4.7	[3]3.3	....	8.0	100.0	1.9
1909	16.0	72.2	88.2	8.0	3.8	[2].....	11.8	100.0	3.8
1913	14.4	72.2	87.1	8.7	3.6	0.6	12.9	100.0	3.4
1918	12.8	72.3	85.1	10.1	3.7	1.1	14.9	100.0	4.6
1919	13.3	67.9	81.2	12.6	4.5	1.7	18.8	100.0	5.0
1920	11.4	69.3	80.7	12.4	4.0	2.9	19.3	100.0	5.0
1921	14.0	61.7	75.7	16.0	4.0	4.3	24.3	100.0	5.1
1922	8.5	63.3	71.8	19.1	4.7	4.4	28.2	100.0	5.9
1923	10.9	63.5	74.4	18.9	4.6	2.1	25.6	100.0	4.9
1924	11.4	60.2	71.6	20.4	5.8	2.2	28.4	100.0	5.5
1925[4]	7.9	63.6	71.5	21.1	5.7	1.7	28.5	100.0	6.0

[1]No figures for water power are available prior to 1889. Hence to make the figures comparable, the data for water power thereafter are expressed as per cent of the fuel total, but are not included in the base on which the percentage is computed. [2]Less than 0.1 per cent. [3]Figures for 1869 to 1899 based on estimated quantity of coal displaced. [4]Preliminary figures. (Prepared by F. G. Tryon, Bureau of Mines, Department of Commerce, July 31, 1926. No. 472.)

The following index numbers are from the Survey of Current Business of the Department of Commerce.

Year—	All Commodity Price Index	Cost of Living	Pig Iron	Mid-Cont. Crude	Gasoline N. Y.	Fuel Oil Okla.
1913	100	...	100	100	100	100
1914	98	100	87	86	...	73
1915	101	101	93	62	...	57
1916	127	109	132	135	...	97
1917	177	131	259	190	141	169
1918	194	159	215	235	144	209
1919	206	172	189	244	146	124
1920	226	198	280	354	174	291
1921	147	167	157	182	155	76
1922	149	157	168	193	149	105
1923	154	161	186	154	123	103
1924	150	164	141	155	107	106
1925	159	168	135	179	114	122
1926	152	167	123	219	125	136

These figures indicate that petroleum products, as commodities, have been and still are relatively low in cost.

Since consumption has practically overtaken the supply of petroleum products, it follows that the price will have to increase until some users are eliminated or until economy of use is enforced. It is difficult to say just how high prices will have to rise to bring about these changes. Fuel oil users are already turning to other forms of energy or to the practice of greater economy of use. The consumption of fuel oil for the generation of steam in public utility power plants decreased from 15,000,000 bbls. in 1923, to 17,000,000 bbls. in 1924, to 10,000,000 in 1925 and an estimated consumption of less than 11,000,000 bbls. in 1926. The railroads required a smaller volume of fuel oil in 1925 and 1926 than in 1924.

The remarkable growth of the petroleum industry is illustrated by the following table of indexes:

TABLE 3—INDEXES OF CONSUMPTION OF VARIOUS PRODUCTS

Year—	Crude Oil	Gasoline	Iron Ore	Bituminous Coal	Cotton
1917	100	100	100	100	100
1920	137	162	98	96	81
1921	140	174	38	74	79
1922	159	202	72	81	89
1923	194	250	99	98	96
1924	205	296	74	92	81
1925	235	357	91	95	94

TABLE 4—INDEXES OF PRODUCTION OF VARIOUS PRODUCTS

Year—	Crude Oil	Gasoline	Pig Iron	Cement	Bitu. Coal	Cotton	Beef
1913	100	100	100	100	100	100	100
1920	178	279	120	108	119	105	119
1921	189	300	54	107	87	97	113
1922	224	355	87	131	85	109	126
1923	295	430	130	151	118	117	130
1924	287	512	101	164	101	99	133
1925	304	620	118	177	109	115	139

The foregoing is not for the purpose of proving the position of petroleum industry, but to emphasize it. The object of this paper is to bring out forcibly the broad aspect of the problem of conservation. The tendency has been for each branch of the industry to "pass the buck." Each branch must set its own house in order and it is going to take a degree of broadmindedness, heretofore unknown in the oil business, to bring about any agreement on the form of conservation needed and the methods to be followed.

*Presented at New York Meeting, A. I. M. E., February 14-17, 1927. (Copyright, 1927, by A. I. M. E.)

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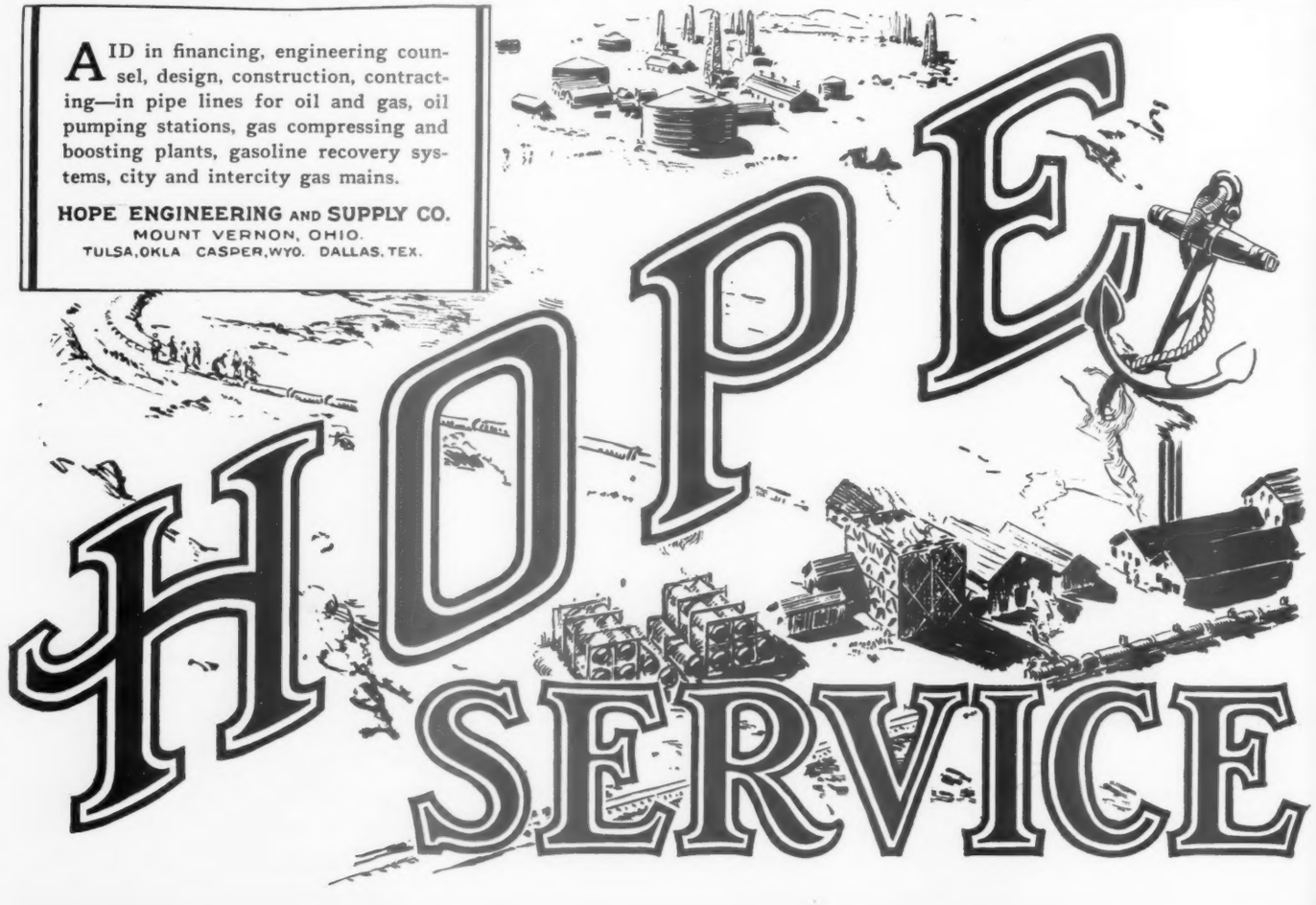

RESULT OF OPERATIONS ON GULF COAST FIELD

(Continued from Page 97)

is situated about 6 miles east of Loreauville, Iberia Parish, Louisiana. It was indicated by seismograph by the Gulf Production Co. The presence of dome material was proved early in November, 1926, by the Union Sulphur Co., drilling in Section 26, Township 11 south, Range 8 east, when it penetrated salt at 1,394 feet. A 600-bbl. producer was later made in this test from sand between 1,100 and 1,180 feet. The discovery of oil on this dome in the first test is a striking exception to the considerable period of time and the many wells that have been required to find production on other domes located by geophysical methods.

Napoleonville Salt Dome.—This dome is about 10 miles southwest of Donaldsonville, Assumption Parish, Louisiana. It was indicated by seismograph methods in the autumn of 1926. This dome was leased up with strong competitive buying by the major companies. The Union Sulphur Co.'s No. 1 Clifton proved the presence of dome material here in December, 1926, when it drilled into cap rock at a depth of 450 feet. This test is located in the SE of Section 41, Township 12 south, Range 13 east.

Nash Salt Dome.—Flank production was discovered January 3, 1926, on the Nash Dome by the Rycade Oil Corp. in its No. 5 Nash, from a total depth of 4,127 feet. This well is on the southeast flank and had an initial flow of 500 bbls. of 20.5 degree oil. Eight tests were drilled on this flank, of which six were oil wells with initial production from 175 to 2,500 bbls. On the southwest flank, about 1 mile from the discovery well, four producers were obtained from an average depth of 4,300 feet, with an average initial flow of about 1,000 bbls. Neither of these areas is yet defined in the trend along the dome. All the acreage on this dome is leased by the Rycade Oil Corp.

Orchard Salt Dome.—Production on this dome was established in January, 1926, by the completion of the Gulf Production Co.'s No. 5 Moore. This well is on the east flank, and had an initial flow of 2,000 bbls. of 34 gravity oil from a total depth of 3,750 feet. One additional producer and two dry holes have been drilled since the completion of the discovery well. This dome has been outlined by drilling on only one flank. The Gulf Production Co. owns the lease on practically all the acreage that is likely to be productive. This dome was discovered in 1924 by the aid of geophysical methods.

Sweet Lake Oil Field.—Oil production was definitely determined in October, 1926, by the completion of the Pure Oil Co.'s No. 3 Sweet Lake from a total depth of 5,897 feet. This well was drilled only 7 feet in the sand and flowed 185 bbls. of 28 degree oil. The oil is accompanied by a heavy flow of gas which had an initial rock pressure of about 1,500 pounds. This well is the deepest producer on the Gulf Coast. The Pure Oil Co. owns the lease on all nearby acreage.

Sulphur Salt Dome.—This dome has been a prolific producer of sulphur for the past 25 years. Some shows of oil have been hit in cap wells. However, it remained for the Union Sulphur Co. in their well No. 719 to prove this dome to carry commercial oil. This well was completed during the latter part of December, 1926, from a sand from 3,402 to 3,416 feet. It made 450 bbls. of oil by heads with a gravity of 22 degrees Baume.

New Flank Pools or Extensions

Spindletop.—Flank production on Spindletop was discovered by Yount Lee Oil Co. in its No. 2 McFadden, in 1925, on the south side of the dome. This area was developed slowly within the holdings of this company. The completion in May, 1926, of the Yount Lee Oil Co.'s No. 4 Gladys City for 6,000 bbls. from a total depth of 2,967 feet extended the original area 1 mile to the northwest, and started a rush of competitive drilling on about 30 areas divided into small tracts. Wells obtained initial flows of from 1,000 to 12,000 bbls. and the daily production by the second week in September had reached a peak of 101,000 bbls. per day. The production has continued between 80,000 and 100,000 bbls. per day up to the end of December.

Spindletop produced 13,121,468 bbls. in 1926. Nearly all of this production came from 117 wells located on about 34 acres on the southwest and south flanks of the dome. This area averaged approximately 375,000 bbls. per acre. The Rio Bravo Oil Co. produced about 2,300,000 bbls. from 2 acres. The oil runs from 23 to 32 degrees. The gravity in general increases as lower horizons are penetrated.

The pay consists of four or five steeply dipping strata of sands and sandy shales The thicknesses of these pay horizons vary from 30 to 80 feet and are separated by intervals of 100 to 800 feet. The aggregate thickness of the pays can only be approximated on account of great variation from well to well, yet it is believed that the total thickness of these pays is about 200 feet. However, each well is produced from only one of these sands at a time. The first or upper sand was developed in the early drilling and was responsible for the first flush production. The discovery of rich pays somewhat deeper caused operators either to deepen their first sand wells or drill additional wells between their original locations. This added oil kept the production up to its early high level despite decreasing production from the first sand. Only a few wells are now producing from the first sand. One of the lower pays, locally called the "Whale" sand, has been an important factor in holding up and even increasing the production during December.

The depth of production varies, both according to which sand is penetrated by the well and also with the distance of the well from the salt mass itself. The depth ranges from 2,500 feet in the first sand when near the salt to over 5,000 feet when in the deepest pay well away from the dome.

The wells are in general located from 50 to 100 feet apart, with occasional wells as close as derricks will permit when attempting to develop a second pay in close to the first well.

The pool has not yet been outlined along the dome towards the north or southeast. Deeper pays or extensions with competitive drilling will be necessary for this field to continue its flush production for more than the early part of 1927. The fact that the Yount Lee Oil Co. holds nearly all the acreage in both directions along the dome, as well as a large proportion of the rest of the flank acreage, renders a repetition of the present rapid drilling campaign improbable. The production of Spindletop for 1926 was 13,121,468 bbls. or 27 per cent of the total Gulf Coast production.

Bowling.—The completion of The Texas Company's No. 3 Taylor, on the south flank of Boling, in December, 1925, brought on a rapid campaign of rather closely spaced drilling in this area. Thirty producers and 11 dry holes were drilled. A peak of 8,800 bbls. was reached during the last week in March, 1926.

This pool has not been defined to the east and west by drilling. However, the small average production of the later wells has curtailed further drilling for the present, except The Texas Company operations which are gradually extending the field to the east, with locations 450 to 1,000 feet apart.

Wildcat testing on the southwest, west and northeast flanks of this dome has not opened up any new production, although it has indicated that the total length of the salt mass is about 5 miles in an east-west direction.

A shallow field on the eastern portion of the top of the dome has been developed from thin sands lying immediately above the cap rock. The shallow field was originally discovered by James Weed in 1925. Twenty-nine wells have been completed in this area, eight of which were producers. The production comes from a depth of from 400 to 450 feet, with the initial flow ranging from 100 to 800 bbls. The oil has a gravity of 19 degrees. These wells are producing from a thin sand, and accordingly have a short life compared with the average flank well. However, low drilling costs compensate for the shorter productive period.

The daily production was 1,600 bbls. at the end of December. Production has

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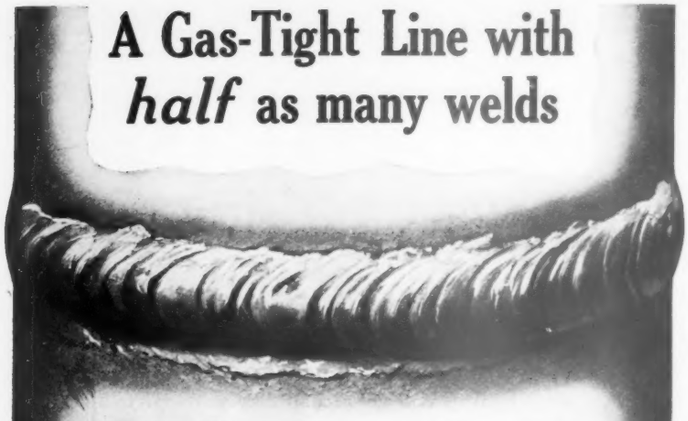

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been confined to 15 acres near the discovery well. However, the extent of the shallow pool has not been closely outlined by drilling.

Sour Lake.—A rapid drilling campaign on the southwest flank of Sour Lake was started by the completion on January 18, 1926, of the Yount-Lee Oil Co.'s No. 2 Gilbert. This well was drilled to a depth of 4,198 feet and came in for an initial production of about 2,000 bbls. of 35 gravity oil. Drilling was extended from this well to the northwest, and a total of 30 producing wells were drilled on 20 acres. A considerable number of these wells were closely spaced. Production is obtained from a sand and sandy shale about 150 feet in thickness.

The area has not been outlined along the dome to the northwest or the southeast. Drilling in these directions will likely be slower, as the acreage is held in larger tracts, and recent completions have a smaller flush than early wells.

The daily production for the entire Sour Lake Field reached a peak of 3,700 bbls. during the first week in October; about 5,000 bbls. of this being due to the new development on the southwest flank.

Barber Hill.—A shallow productive area on the northwest flank of Barber Hill was opened on May 21, 1926, by Mills Bennett and Humphreys Corp.'s No. 1 Barber, which had an initial flow of 500 bbls. of 33 gravity oil, from a total depth of 2,245 feet. A total of six producers and five dry holes have been drilled near the discovery well.

On the northeast flank of this dome Mills Bennett and Humphreys Corp.'s No. B-2 Kirby was completed on November 8 for 300 bbls. of 23 gravity oil from a total depth of 4,108 feet. A second test is now drilling.

Blue Ridge.—The south flank of Blue Ridge was credited with a new sand when the Abercrombie Drilling Co.'s No. 1 West & Schenck flowed 1,500 bbls. of 23 gravity oil from a total depth of 3,281 feet. This well has continued flowing for about five and one-half months with a slow decline. Two additional wells are now producing from this sand, and two other wells nearer the dome have probably missed it. A conservative drilling program is gradually developing the nearby acreage in both directions along the dome.

The Navarro Co.'s No. 1 Robinson, on the northwest flank of this dome was completed November 27 for an initial flow of 2,000 bbls. from a total depth of 3,652 feet. The oil has a gravity of 23 degrees. This producer has held up well and will likely cause a moderate drilling program on this flank.

South Liberty.—A productive area on the west flank of South Liberty Dome was opened by the completion of the Humble Oil & Refining Co.'s No. 2 Welder, in July, 1926. This well was drilled to a depth of 3,881 feet and had an initial flow of 2,500 bbls. of 22-degree oil. By the end of the year the pool had been extended 1,200 feet south along the dome by five additional producers. These wells flowed initially from 250 to 2,500 bbls. They are troubled with considerable water. The pool has not been defined to the north or south along the dome.

Acreage to the south is cut up into small tracts held by various companies. This acre will probably be drilled rapidly if good wells continue in this direction.

Pierce Junction.—This productive area on the west flank of Pierce Junction, discovered by the Rio Bravo Oil Co.'s No. 1 Settegast, in 1925, was extended to the northeast by the Bashara Co.'s No. 1 Bender, which was completed on August 18, 1926, for 1,200 bbls. from a depth of 3,528 feet. This well brought on closely spaced competitive drilling. Sixteen additional producers were obtained in this area ranging from 200 to 3,200 bbls. initial. A peak of 7,650 bbls. per day for this dome was reached the first week of November. The largest wells are being obtained south of the Bashara Co.'s No. 1 Bender and development is proceeding slowly in that direction.

Markham.—The Rycade-Humble's No. 2 Kountze, completed August 20, 1926, procured commercial oil on the southwest flank of this dome. This well had an initial production of 150 bbls. of 29-degree oil from a depth of 3,605 feet. A second small producer was later obtained. Acreage here is held in large tracts and it is likely further development will be slow unless larger wells are obtained.

In December, the Houston Gulf Gas Co. and John Deering's No. 2 Gray, came in as a gas well from a total depth of 3,434 feet on the north flank of the dome. This well turned to oil about three days later and soon increased to a production of 694 bbls. of 26 gravity oil. This well is in the immediate vicinity of two producers formerly drilled by the Rycade Corp. If this producer holds up well, additional operations should be expected; although, the large size of the tracts will encourage only a conservative drilling program.

High Island.—The Sun Oil Co.'s No. C-6 Cade determined the presence of commercial production on the southeast flank of this dome in March 1926. This well had an initial flow of 345 bbls. of oil, 8 per cent basic sediment, from a sand from 2,341 to 2,381 feet. A second well 500 feet farther away from the dome was drilled to a depth of 5,651 feet without obtaining production. A third well is now drilling.

Kingsville.—This field was extended on August 24, 1926, 1 mile to the northwest by the Humble Co.'s No. 2 Kleberg, trustee. Seven wells are producing a daily average of about 575 bbls. from a depth of 2,000 to 2,300 feet. This gravity of the oil ranges from 20 to 22 degrees.

Brenham.—The north flank of this dome was proven for production in December, 1926, by the Pratt-Hewitt Oil Co.'s No. 1 Konieczny. This well is estimated good for about 50 bbls. of 23 gravity oil from a depth of 1,497 feet.

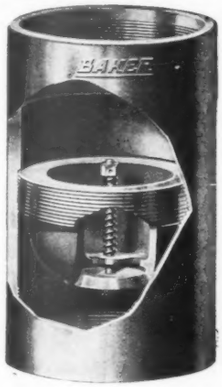
Lockport.—This field was extended during the past year about one-fourth mile to the northwest from the previous production. Nine producing wells were added in 1926 and the field maintained a rather consistent average of about 3,300 bbls. daily. Twelve wells were producing at the end of 1926. The Vacuum-Gulf Co.'s No. 4 Lock-Moore is the deepest test in the Gulf Coast, having reached a total depth of 6,420 feet before being abandoned as a dry hole. Two other tests in this field have been drilled below 6,000 feet. The production in this field comes from several sands ranging from 3,100 to 5,476 feet in depth, with gravity varying from 23 to 29 degrees. The Vacuum-Gulf Co.'s No. 1 Freiberg-Wolf came in for an initial production of 1,000 bbls. from a total depth of 5,476 feet, and is the second deepest producer in the Gulf Coast. The entire producing field is operated by the Vacuum Oil Co., with the Vacuum having an ownership of two-thirds and the Gulf Production one-third.

New Gas Area

The Refugio Gas Field in Refugio County, Texas, has been developed during 1926 by the drilling of 46 tests, 30 of which were gas wells. This has enlarged the proven gas area from one square mile to a field 3½ miles long by 1 mile wide. The production comes from four sands between 1,600 and 2,400 feet in depth, aggregating about 85 feet in thickness. Gas from this field is used to supply the Houston district, and the sulphur operations at Hoskins Mound, Bryan Heights and Gulf. Main and branch pipelines have been completed during the year to the above named localities. About 60,000,000 feet of gas is drawn daily from this field. The field is owned principally by two companies—the Houston Gulf Gas Co. and the Houston Oil Co.

Geophysical Operations

The success of geophysical work in locating new salt domes in 1925 led to an active program in 1926 of seismograph and torsion balance work by most of the major companies. The seismograph work of reconnoissance type combined with previous shooting, covers a major portion of the Gulf Coast of Texas and Louisiana. A strip of territories along the coast about 70 miles wide extending from the Edna Gas Field in Texas on the west to slightly beyond the Napoleonville Salt Dome in Louisiana on the east, has been covered in reconnoissance by one seismograph party or another. The acreage embraced is approximately at 24,000 square miles. This has been supplemented by torsion balance surveys of local



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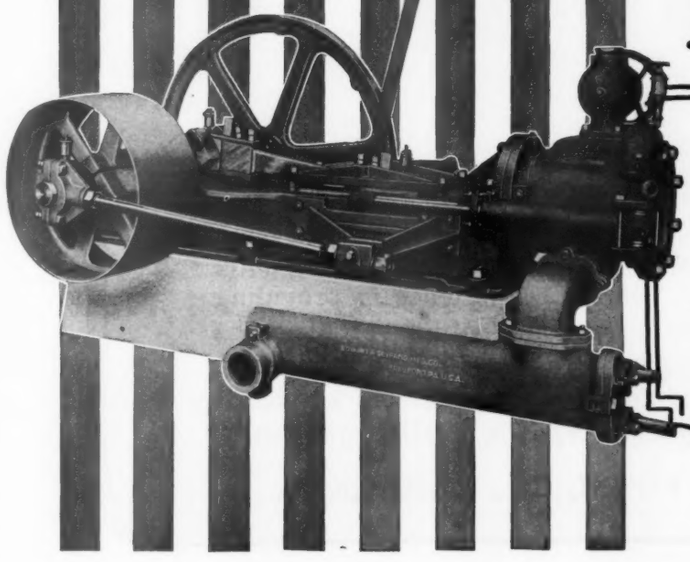

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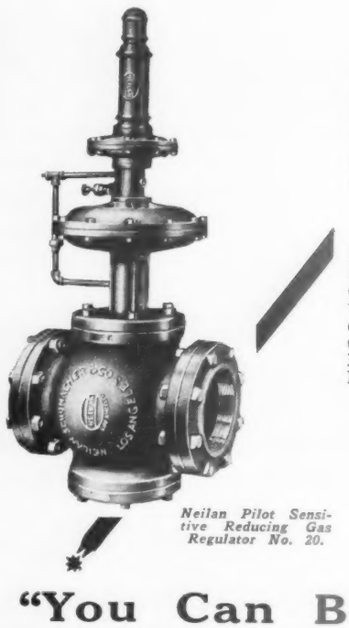

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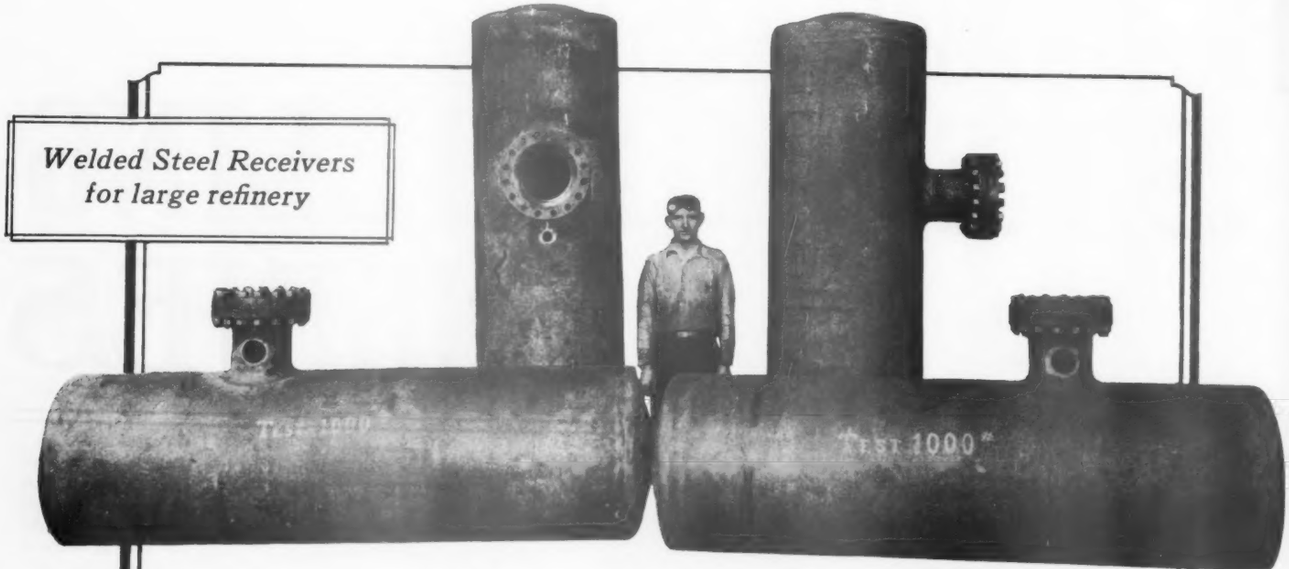

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areas within this strip of territory. In addition both seismographs and torsion balances have surveyed local areas extending southwest to the Rio Grande.

This geophysical campaign has resulted in the discovery of the three salt domes listed in the first of this article. It is generally considered, judging from leasing activity, that at least one additional dome has been located, although it has not been proved by drilling.

The geophysical work of the year has shown that only a comparatively small number of undiscovered shallow salt domes existed within the general territory of the known domes. Search for domes deeper than 3,000 feet and for fields of structural type remains for future work.

The speed and accuracy of seismograph work was considerably improved by the adoption of radio for communicating the instant of explosion to the seismograph detectors. This permitted the computation of distances. It also gave a direct record on the film of the time of explosion, which had formerly been determined only by computations using the recorded air waves. Both surveying and computations of time of initial discharge had previously been a source of errors and delays.

The importance of knowing when a new salt dome had been discovered, of what areas had been covered by other companies, led many companies to strengthen their scouting system by men assigned to observe geophysical operations only. When scouts determined that a seismograph changed its work from reconnoissance to detail methods on a promising area, other companies would immediately move their seismographs into the area and quickly check the presence or absence of a salt dome.

Geophysical work has suspended much of the wildcat drilling on surface salt dome prospects and has enabled companies to release large amounts of unfavorable acreage. Nevertheless, some surface prospects are being drilled to attempt to discover structural fields, for it is generally recognized that with present knowledge it is difficult for seismograph or torsion balance reconnoissance to locate accurately a fold or fault buried beneath thick unconsolidated sediments.

The torsion balance and seismograph have been applied to the outlining of the periphery of many known salt domes, but sufficient drilling has not been done to fully determine the value of such work. However, the results up to the present indicated that a considerable number of the holes necessary to determine the position of the edge of a dome can be eliminated by these surveys. The accuracy of this type of work is undoubtedly increasing materially with each additional dome studied.

Looking Backward

The year of 1926 opened with Boling, Piedras Pintas, Spindletop and Pierce Junction appearing as probable sources of flush production. Of these Pierce Junction and Boling secured noteworthy development. However, it remained for Spindletop to develop a field of first magnitude and raise the Gulf Coast yearly output beyond any point reached in its past history.

This year has seen the discovery of four salt domes, all of which were located as a result of a vigorous geophysical campaign covering practically all the remaining territory in which domes were already known.

Important discoveries of oil on new flanks of old domes have been made and these have been developed into small pools in a systematic manner. This development has been aided by improved equipment and methods which has enabled operators to test more efficiently all possible oil strata. These improvements have also encouraged producers to carry a greater number of tests deeper than heretofore, with the result of finding several deeper pays.

Looking Forward

The Gulf Coast production by the end of the first three or four months of 1927 should have lessened considerably in amount and be gradually approaching its average level of the past five years, on account of the probable decline of flush production at Spindletop. Of course, Spindletop may possibly continue its output by discovery of deeper sands or extensions, or other fields may develop a quick flush; nevertheless, it is more probable that the Gulf Coast production will be mainly sustained by the output of a large number of small fields.

It is probable that geophysical work for 1927 will consist mainly of reconnoissance, principally by seismograph, in regions extending well beyond the known salt domes. Search by detail work for fields of structural type and for very deep sand domes will be given attention. Known domes will be detailed with increased accuracy.

No estimate is hazarded as to the number of domes that will be discovered by geophysical methods, yet it is believed that the discoveries of 1927 will not greatly influence the production figure for the Gulf Coast for 1927.

It is probable that new drilling operations will be largely confined to developing flank production on salt domes. Rapid development may be expected only where productive acreage is cut up into small tracts. However, nearly 50 per cent of the domes are held in fairly large tracts, and accordingly on these domes development can be carried with sufficient care to permit efficient operations and to aid in preventing overproduction.

EXECUTIVE ORDER BILL MAY NOT GET THROUGH

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 19.—Bills to authorize oil and gas mining leases upon unallotted Indian lands within executive order Indian reservations are on the calendars of both the Senate and the House of Representatives, and with Congress adjourning on March 4 their final passage and approval by the Senate will be an eleventh hour act with the possibility of failure.

Bills for this purpose were passed by the preceding session of the present Congress, but were not approved by the President. The same bill, amended to meet the President's objection, has now been acted upon favorably by committees in both houses. This amendment is contained in Section 5, which places all applicants for permits under the act of February 5, 1920, on equal terms, whereas the same section of the bill previously passed made a distinction between an applicant who had been granted a permit and other applicants. Now the permittee is entitled to favorable consideration if he can show that he or the party with whom he had contracted has performed any of the following conditions: Expended money or labor in geologically surveying the land covered by such application, has built a road for the benefit of such lands, or has drilled or contributed toward the drilling of the geological structure upon which such lands are located, while applicants were required under the previous bill to show that they had performed all of these conditions.

There seems to be little doubt that the bill as now amended and reported to the Senate will be passed by the Senate and go to the House, where the plan is to substitute it for the House bill, which is identical in terms. As the case now stands, there is no assurance that the House will set aside any date for the consideration of legislation from the Committee on Indian Affairs. The only way to handle the bill in the House will be under a special rule and that is likely to come toward the last days of Congress. In fact, the Senate may not pass the bill itself until the life of the present Congress is drawing to a close.

Dangers that face the bill, even if a special rule for acting upon it is brought into the House, lie in the fact that there are three minority reports from members of the House Committee on Indian Affairs. One of these is signed by Representatives Grant M. Hudson of Michigan, F. D. Letts of Iowa and Elbert S. Brigham of Vermont; another is signed by Representative Elliott W. Sproul of Illinois, and the third is signed by Representative Edgar Howard of Nebraska, and they all voice objections to the passage of the bill. Very naturally, if they should carry their objections to the point of joining in a serious fight against it,

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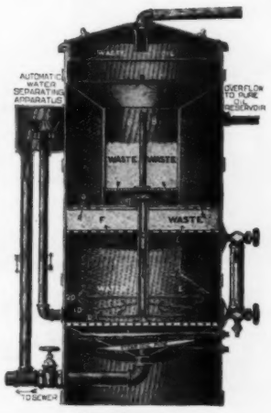

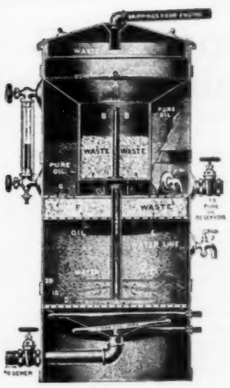

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the limitation of time would make it impossible to keep the bill before the House long enough to dispose of it. As there is a perfectly good majority in favor of the bill in the House, these gentlemen would have to be masters of parliamentary procedure to accomplish obstruction to a vote, but the possibility of danger is sufficient to make it wise for anyone who can bring influence to bear to have one or more of them withdraw obstructive opposition to the measure.

M. I. T. STUDENTS IN TIDE WATER COURSE

The first group of students to attend the newly established field station at the Tide Water Oil Co. plant, Bayonne, N. J., has just completed its work. The station, which was opened last October, is conducted by the fuel and gas engineering department of the Massachusetts Institute of Technology and is one of three stations, the other two being at the Iroquois Gas Corp. and Bethlehem Steel Co., Buffalo, and Cambridge Gas Light Co., Cambridge, Mass.

Some of the more important tests just completed are "A Heat and Material Balance of the Carbonization Plant of the Iroquois Gas Co.," "Fuel Consumption of Coal Carbonization Retorts and Study of Proposed Waste Heat Boiler Installation at Cambridge Gas Light Co." and "A Heat and Material Balance on a Battery of Continuous Stills at the Tide Water Refinery."

CORROSION CAUSES AND METHODS OF PREVENTION

(Continued from Page 76)

pumps and the "cutting" of cups by hard, scaly, granular products of corrosion.

e. Leakage of oil through holes corroded in tubing. Leakage of oil through corroded and worn parts of pumps.

7. Loss of production.

a. Loss from inefficient pumping.

b. Loss of operating time.

c. Premature decline in rate of production.

d. Incomplete drainage of pay sands.

8. Increased cost of operation from—

a. Rapid deterioration of equipment.

b. Mechanical difficulties in operation.

c. Costly repairs and replacement of corroded equipment, which involve fishing, cleaning, redrilling, recasing and retubing jobs.

d. Premature decline in production caused by damage to pay sands.

9 Premature abandonment of wells, owing to troubles given above and impossibility of repairing damaged wells, which involves—

a. Loss of investment.

b. Incomplete drainage of reservoir sands. (Additional drilling and the application of improved methods of recovery may not be warranted.)

Prevention of Initial Corrosion

From the foregoing conception of the corrosion with which we are dealing, and considering the subsequent notes presented in this paper, it appears that the prevention of the initial corrosion should be much more economical than trying to stop or repair the damage after it has started. By waiting until corrosion troubles develop, which is the general practice, we not only suffer the loss of the original equipment with consequent repairs, production troubles and permanent damage to the oil sands from infiltrating waters, but are also forced to deal with the ruinous effects of the self stimulation of the corrosion even after we have installed new equipment to replace the old.

The prevention of initial corrosion calls for the detection of corrosive conditions and the application of proper methods of protection when the wells are first being drilled and equipped. Past failures to meet the oil and gas well corrosion problems in this way are now costing the operators in old fields many millions of dollars each year.

Detection of Corrosive Conditions

In the absence of more positive information such as the actual occurrence of corrosion in any oil or gas field under consideration, the question as to whether or not precautions should be taken against the corrosion of equipment in the wells depends primarily on the character of the waters and gases found in the wells. Samples of the waters encountered while drilling the first wells in a field should be collected and examined immediately to determine their corrosive or noncorrosive character. The chemical examination of water samples should be made by an experienced water chemist.

Criteria for the interpretation of the chemist's report are as follows:

For quick field determinations:

If the total hardness appreciably exceeds the total alkalinity, corrosion is to be expected.

If the total alkalinity appreciably exceeds the total hardness, corrosion is not to be expected.[1]

For partial and complete analyses:

If the total reacting value of the strong acid radicles (chloride and sulphate) appreciably exceeds the total reacting value of the alkalies (sodium and potassium), corrosion is to be expected.

If the total reacting value of the alkalies appreciably exceeds the total reacting value of the strong acid radicles, corrosion is not to be expected.

For the Palmer classification:

By applying the Palmer[2] classification of water analyses to the analyses of waters collected in wells where corrosion was occurring, and also to the analyses of waters from old fields where there has been no indication of corrosion in the wells, it is possible to classify the corrosive and noncorrosive water according to their chemical qualities expressed in per cent as shown in Table 1:

TABLE 1[3]

Comparison of the chemical qualities of corrosive and noncorrosive oil and gas well waters:

Properties of Reaction—	Corrosive %	Non-Cor. %
Primary salinity	50-91	16-83
Secondary salinity	8-30	None
Primary alkalinity	0-2	14-82
Secondary alkalinity	0-14	0 8-6
Chloride salinity	7-100	16-99.7
Sulphate salinity 0.2-92.4		0.3-84
Concentration of saline matter (parts per million) 2,106-164,000		5,000-12,000

The predominating properties of reaction of corrosive waters are evidently primary salinity (generally exceeding 50 per cent) and secondly salinity (generally exceeding 20 per cent but sometimes as low as 8 per cent.) The predominating qualities of the noncorrosive waters are primary salinity (usually ranging from 16 to 83 per cent) and primary alkalinity (usually ranging from 14 to 82 per cent) There seems to be no consistent relation between the corrosive and noncorrosive qualities of the waters on the one hand and the relative proportions of chloride and sulphate salinity, or the total concentration of dissolved salts on the other. As a rule, however, corrosive waters have the higher concentration. Primary salinity and secondary alkalinity are common both to corrosive and noncorrosive waters. Corrosive waters are characterized by secondary salinity—that is, salinity such as is caused by the solution of calcium and magnesium chlorides; whereas noncorrosive waters are characterized by primary alkalinity—that is, alkalinity such as is caused by the solution of sodium carbonate. The primary alkalinity of a water tends to prevent corrosion but primary alkaline waters charged with hydrogen sulphide gas may be corrosive. In the absence of hydrogen sulphide, the minimum primary alkalinity required for the protection of well casing and tubing against corrosion seems to lie below 14 per cent, though it possibly is above 2 per cent. The presence of hydrogen sulphide may or may not invalidate the criteria herein set forth for the recognition of noncorrosive waters. This gas is one of the most destructive agencies with which we have to deal in oil and gas well corrosion and should be always regarded with suspicion.

Two-Fluid Action

Where a well penetrates two or more

[1]For field examination of waters and calculation of results, see Collins, W. D. Field Examination of Water; U. S. Geol. Survey Mimeographed Report, March, 1922.

[2]Palmer, Chase. The Geochemical Interpretation of Water Analyses, U. S. Geological Survey. Bulletin 479, 1911.

[3]Mills, R. Van A. Protection of Oil and Gas Field Equipment Against Corrosion. U. S. Bureau of Mines, Bulletin 233, 1925, p. 28.

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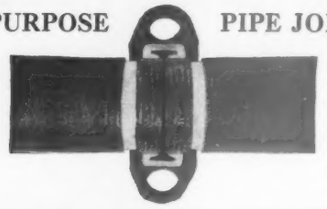

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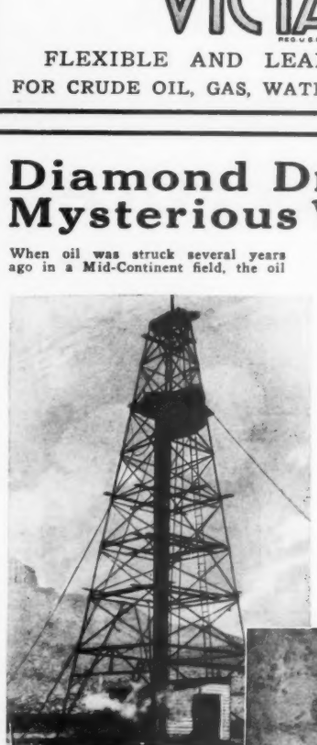

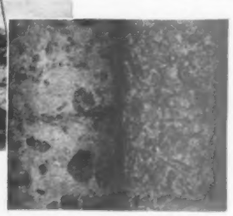

Sullivan Diamond Drill boring 3400 ft. hole at Van Horne, Texas. At right: Diamond Drill cores.

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water bearing horizons, unprotected casing may be subjected to ordinary two-fluid galvanic action in which the corrosion generally occurs in the more dilute rather than in the more concentrated brine. Under these conditions a comparatively dilute and relatively harmless water may appear to be the corroding agent. It frequently happens that a casing is corroded through by a comparatively dilute top water and remains in perfect condition at the level of a more concentrated and apparently harmful brine. The damage is really done through the agency of both waters which are necessary to set up this destructive two-fluid galvanic action with the casing. In this connection attention is called to an error in Bureau of Mines Bulletin 233, in which the direction of currents shown in Figure 11 illustrating two-fluid galvanic action in wells should be reversed.

Methods of Protection

The protection of underground well equipment against corrosion divides itself into the protection of casing against attack from the outside and the protection of casing, tubing and pumping equipment against the corrosive action of waters and gases inside the wells.

Protection of casing, against corrosion from the outside, is being successfully accomplished by the mud-laden fluid method and the cement shutoff method and by combinations and modifications of these. The protection is accomplished through the exclusion of corrosive waters from contact with the outside of the casing and through the prevention of circulation of corrosive waters and gases in the well cavities between the casing and the rock walls of the well. The mud-laden fluid method and cement shutoff method are common practice in many fields and have been repeatedly described in the literature.[4] Modifications of these methods as applied to protection against corrosion have also been fully described in Bureau of Mines Bulletin 233.[5] It is not the purpose of this brief paper to repeat the descriptions of these methods which are familiar to all petroleum engineers but rather to emphasize the advantages of applying the protection during the early life of a field before corrosion gains uncontrolled headway.

Protection against corrosion inside the wells is accomplished mainly through exclusion of water by tight casing shutoffs and bottom water jobs. Where corrosive waters cannot be excluded, successful protection has been maintained by the use of zinc electrodes in the form of sleeves cast on the tubing, working barrel and anchor tubing. The iron and steel equipment is in this way protected at the expense of the electropositive zinc which corrodes and must be replenished as required. One company has reported good results by casting zinc sleeves, four feet long and having the same thickness as the tubing collars, on the three bottom joints of tubing together with one sleeve on the working barrel and one on the anchor tubing. The cost of this including new tubing on which the zinc was cast was approximately $60 per well. In the application of zinc protection, the equipment must be thoroughly cleaned before the zinc is put on and the zinc must be replaced at least once a year. This method is also fully described in Bureau of Mines Bulletin 233.

For the further prevention of corrosion inside the wells, especially where corrosion is stimulated by compresesd air being put into the sands for oil recovery purposes, some of the high chromium and nickel chromium steels are giving good service for the balls and seats of valves. These metals would also give good service in working barrels. If the industry could use these metals for all of the equipment below the fluid levels, corrosion troubles inside the wells would be reduced to a minimum.

Nonferrous corrosion-resisting alloys are not considered in this paper because they are generally electronegative to iron and steel and tend to stimulate the corrosion of those metals. Cast iron, however, deserves mention because it is giving good service against corrosion in working barrels and in lead lines between the wells and field tanks.

One large company is experimenting with the periodic introduction of alkaline solutions into wells where hydrogen pulphide corrosion has gained dangerous headway. The experiments have met with some success although the methods and results have not yet been made public.

Conclusion

From the Bureau of Mines investigations preceding this paper, it is estimated that approximately 75 per cent of the underground corrosion troubles in old oil fields could have been prevented if the industry had gone to the trouble and nominal expense of establishing proper protection when the wells were first being drilled and equipped, that is to say in the early life of the fields before the self stimulating corrosion could gain headway. The inevitable hurry incident to competitive field conditions, during the periods of flush production, and a tendency to pass by lightly any consideration of damage which might not develop until years in the future, have mitigated against such early protection. Even where it is common drilling practice to use mud-laden fluid and cement, the protection afforded water strings against corrosion has generally been only a secondary or minor consideration.

The difficulties that are being experienced from corrosion in our old fields furnish the best object lessons with which to prove our case. These troubles are continually increasing rather than decreasing because the problem is being neglected until it forces itself upon the operator, and also because of the increasing use of improved methods of recovery that stimulate corrosion. The introduction of compressed air into oil wells either for lifting or for repressuring purposes tends invariably to stimulate corrosion and should be guarded against in advance.

It should also be remembered that the future of our petroleum producing industry must inevitably depend upon the application of improved methods of recovery in old fields. The new field of today will be the old field of tomorrow. With these facts in mind the protection of new fields against unnecessary damage by corrosion should be a matter of primary importance. In oil and gas well corrosion an ounce of prevention is worth more than the proverbial pound of cure.

[4]Pollard, J. A., and Heggem, A. G. Mud-laden Fluid Applied to Well Drilling; Tech. paper 66, Bureau of Mines, 1914, 21 pp. Heggem, A. G., and Pollard, J. A., Drilling Wells in Oklahoma by the Mud-laden Fluid Method; Tech. paper 68, Bureau of Mines, 1924, 27 pp. McMurray, W. F., and Lewis, J. O. Underground Wastes in Oil Fields and Methods of Prevention: Tech. paper 130, Bureau of Mines, 1916, 28 pp. Lewis, J. O., and McMurray, W. F., The Use of Mud-laden Fluid in Oil and Gas Wells: Bull. 134, Bureau of Mines, 1916, 86 pp. Tough, pp. Tough, F. B., Methods of Shutting Off Water in Oil and Gas Wells: Bull. 163, Bureau of Mines, 1918, 122 pp. Tough, F. B., Wilhston, S. H., and Savage T. E., Experiments in the Flat Rock Pool, Crawford County, Illinois. Illinois State Geol. Survey, Bull. 40, 1919, pp. 99-140. Ambrose, A. W., Underground Conditions in Oil Fields: Bull. 195, Bureau of Mines, 1921, 238 pp. Mills, R. Van A., Protection of Oil and Gas Field Equipment Against Corrosion, Bureau of Mines Bull. 233, 1925, pp. 73-82.

[5]Mills, R. Van A. Protection of Oil and Gas Field Equipment Against Corrosion, Bureau of Mines Bulletin 233, 1925, pp. 74-84.

NUMEROUS PHASES TO SULPHUR PROBLEM

(Continued from Page 146)

by Waterman and Heimel; J. Inst. Petroleum Tech., 46, 812 (1924).

4. "The Sodium Plumbite or Doctor Test of Gasolines," by Brooks; Ind. Eng. Chem., 16, 588 (1924).

5. "The Treatment of Natural-Gas Gasoline to Meet the Doctor Test," by Dow; Serial No. 2462, United States Bureau of Mines.

6. "Process of Desulphurizing Petroleum Oils," by Cobb; United States Patent 1,413,005.

7. "Sulphur in Petroleum Oils," by Waters; Technologic Paper, No. 177, Bureau of Standards.

8. "Distribution of Sulphur in Crude Petroleum," by Smith and Stark; Serial No. 2582, United States Bureau of Mines.

CHANGES IN THE DEVELOPMENT OF MARACAIBO BASIN, VENEZUELA

By Special Correspondent

MARACAIBO, Venezuela, Jan. 15.—The past few months have brought about a number of changes in the development of Maracaibo Basin; the most important is the abandonment of the Perija district in the State of Zulia by the Standard Oil Co. of Venezuela, after it had spent more than $1,000,000 in wildcatting. It had drilled a number of tests in this district over a period of several years, and the operations have been carried on under great danger and difficulties. From the beginning they have been harassed from time to time by the Motilone Indians, a fierce tribe who became more ferocious in each attack and in the past few years have killed six white men and dozens of peons. In the last uprising, Dr. Fritz Kuhn, Swiss geologist, was slain; and, with the exception of one, all the Standard camps were destroyed. Doctor Kuhn's body was recovered by Standard employes badly mutilated. In June a driller by the name of Smith was shot through the back with an arrow while seated at a table in one of the Standard camps. It is not known just how much bearing these episodes had on the abandonment of this district, which lies in a very rugged and out-of-the-way place; the company even having to build railroads to some of the wildcat locations.

The Standard is also curtailing drilling in other parts of the basin, and is laying off a number of men. It is generally understood it will give up operations of the British Controlled Oilfields, Ltd., at the termination of the one-year agreement. But from the fact that the Standard is continuing its building program of staff houses, it is assured it will be listed as one of the active operating companies for years to come.

The New England Oil Corp., after subleasing the larger portion of its holdings to the Richmond Petroleum Co., has abandoned operations entirely by withdrawing from Venezuela.

Gilbert C. Smith, connected with the International Oil Co. and the Mexican Seaboard Co., has been spending some time in Maracaibo, and it is the consensus of opinion that within a very short time his company will open up offices here.

A. V. Simpson, vice president of the Ingenieros y Contratisfus Martin S. A., after an absence of several months has returned to Maracaibo and given out statements to the effect that his company has en route to Mexico several hundred tons of material and a large personnel of engineers, etc., and expects to do a large contracting business here.

Program for 1927

The Caribbean Petroleum Co., with all its available storage filled, is curtailing operations; the field offices have received instructions that only 30 wells will be drilled in 1927, and production kept below the 4,000-ton mark, which will cut the daily production about 50 per cent. The reason for this curtailment is that it may devote more attention to the development of the Venezuela Oil Concession Co. property along the lake, which is being offset by the Gulf and Lago Petroleum companies. At Mene Grande work is being pushed on the gas-gathering plant, which consists of 18 units.

The Venezuela Gulf Oil Co. has about completed driving piles for its new dock, and has erected a large mud-mixing plant on shore, with pipelines connecting with the wells located in the lake, which curtails blowout and fire hazards, quite frequent in these fields; No. 47 Superior blowing out a few days past and running wild for some time at the rate of 7,000 bbls. per day.

The Gulf has recently completed a large barge for wildcat work in the lake, fitted with an office, clubrooms and 22 bedrooms for the staff. It is also equipped with electric, ice and water distillation plants. This is quite an innovation and no doubt a very practical one.

Despite the fact that this company is continually erecting storage, a short time ago it had its 2,000,000 bbls. of storage filled to overflowing and its entire fleet of small tankers loaded and riding at anchor in the harbor, with no place to unload. Quite a contrast from a year ago when the fleet rode at anchor empty and nothing to load. During the month of October it exported 586,946 bbls. of crude and completed seven wells.

In its No. 2 El Monite it encountered sands from 3,400 to 3,800 feet and it looks like a good producer; it will very likely be offset by the Richmond Petroleum Co. The Gulf has spudded in on a new wildcat in the district of Mara on the El Tigre structure; this will be a very interesting test as preparations have been made to go below the 4,000-foot level if necessary. Its No. 1 Geneva, north of the city limits of Maracaibo, is now drilling below 4,000 feet. Its No. 2 El Monito and No. 1 Malt wildcat remain shut down.

President Stewart Arrives

J. W. Stewart, president of the Lago Petroleum Corp., and Mr. Sabourn arrived here accompanied by their wives, and are expected to remain in the tropics several months. The company last week placed orders for five new steel barges, ten 80,000 and three 75,000-bbl. tanks, which will give it over 1,000,000 bbls. extra storage. This company has suffered two severe losses in the past few months; on November 26 its No. 55 blew out from a depth of 550 feet, catching fire and seriously burning the American driller, destroying the entire derrick and drilling rig. The storm at Miami, Fla., sunk a large dredge and several barges the company had there en route to Maracaibo.

The Lago corporation is making good progress in field development, adding four wells to its list of producers in October, and has four wells drilling. In October it exported 502,906 bbls. of crude, which was an increase of 263,190 bbls. over September. It has contracted with the Wampun Oil Corp. for 75 per cent of its production, and is laying a pipeline to connect with its storage at La Salinas.

The end of 1926 finds the Venezuelan Oil Concessions Co. by far the most active company in the Maracaibo Basin; it now has 30 strings of cable and rotary tools and 12 swabbing outfits in La Rosa alone, and has others on order. There has been a continual line fight between this company and the Gulf and Lago companies for the past three years. In October the V. O. C. completed 11 wells, and its exports jumped from 1,000,800 bbls. in September to 1,148,180 bbls. in October, its La Rosa field furnishing 996,300 bbls., while La Paz and La Concepcion furnished the remainder, all three fields setting a new record for production.

The British Controlled Oilfields, Ltd., did not report any completions for October, though five drilling and one standing; in that month it exported 164,969 bbls., which was 13,986 less than the previous month. The Standard, which has been operating this property for the past year, will return it to the owners. It is not likely that the production will be increased to any great extent in the near future, as its El Mene Pool is well defined.

Geological Tests

The Richmond Petroleum Co. has experienced considerable trouble with its No. 1 El Mamon casing, and the 18 tons of cement used did not remedy the trouble; on November 12, while the well was making 15,000,000 feet of gas, one of the gas-driven pumps backfired, burning two Americans severely. This company has completed several geological tests drilled on the property acquired from the Venezuela Petroleum Co. in the district of Urdaneta; these tests are drilled less than 1,000 feet.

The Colon Development Co. continues to receive large amounts of material and is preparing to give the Rio Tarra and Rio de Oro fields a thorough test; it has four wells drilling and three shut in at present.

The Atlantic Refining Co. is now using the seismograph in its geological work; this method is something entirely new in

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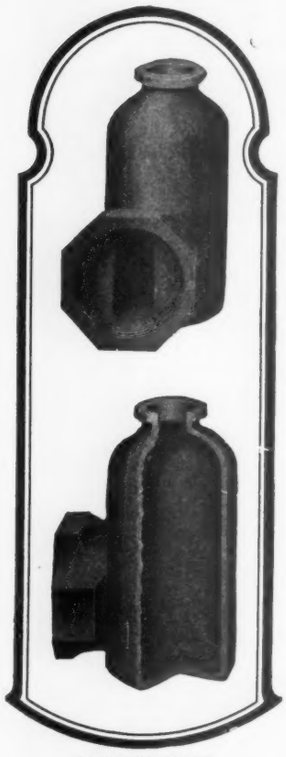

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Venezuela. Shallow test holes for geological purposes are also being drilled.

California Petroleum Exploration Co. is fishing in No. 1 Neopio at 3,712 feet, and making very little headway with No. 1 Neogel.

Orinoco Oil Co. is drilling below 4,230 feet in No. 1 Miranda. At the beginning of operations excellent time was made, but for the past few months they have slowed down considerably.

The Sun Oil Co. has had considerable trouble in the past in keeping a supply of fuel on hand, but has recently overcome this trouble by laying a fuel oil line from the lake to their Boscan wells, and with the beginning of 1927 will show a great deal more speed.

The Wampun Oil Corp. has contracted to let the Lago Petroleum Corp. have 75 and the Venezuelan Gulf 25 per cent of the production of its No. 1 Unity well.

Storage Doubled

In the past 12 months Venezuelan storage has been a little more than doubled; the grand total of all companies in 1925 was 2,230,000 bbls; last of October, 1926, 5,000,000 bbls.

For the benefit of readers who are interested in the export of crude oil from Venezuela and the red tape that has to be gone through, a list of the itemized charges is here given. This list is based on shipments to the Dutch Islands, and figures are in bolivars, which is the currency of Venezuela and about the equivalent of 20 cents United States currency.

Entering lake in ballast.	Bolivars
Anchorage	1.50
Telegram to Minister of Finance	1.50
Health certificate at lake ports	3.00
Health certificate at Dutch ports	10.00
Captain's bond on voyage	20.50
Launch for use of officials	50.00
Permit to proceed to oil docks	1.50
Permit to load	1.50
Mess list	2.00
Crew list	2.00
Navigation license at oil dock	5.00
Oil inspector	25.00
Consular fees	25.00
Health certificate	55.00
Sanitary inspection	25.00
Despatch in ballast from island	2.00
Sailing permit	2.00
Navigation license	5.00
Baggage list	2.00
Total	*239.50
Sailing with export cargoes, shipping papers are 2 per cent of cargo value or about, per cargo	225.00
General manifest	3.00
Buoyage tax	1,234.00
Bill of lading for shipment	5.00
Sailing permit	1.50
Navigation license	5.00
Health certificate	5.50
Pilot to San Carlos and return	20.00
Telegram to Minister of Finance	3.00
Average amount for qualification	160.00
Total	1,662.00
Average overtime work	239.00
	1,901.00

*$47.90.

This is an average of 0.122 bolivars per barrel, or $0.0235 United States currency.

A table of buoyage charges since the first export of oil in 1913 will give an idea of the increase in production each year:

	Bolivars
1913	69,953.00
1914	69,610.00
1915	63,317.00
1916	68,284.00
1917	68,319.00
1918	71,384.00
1919	105,221.00
1920	144,199.00
1921	204,278.00
1922	231,529.00
1923	412,057.00
1924	935,705.00
1925	2,033,231.00

NEW OIL GEOLOGY BOOK

"The Geology of Oil, Oil-Shale and Coal" is the title of a book of 104 pages by Murray Stuart, published by Mining Publications, Ltd., 724 Salisbury House, London, E. C. 2, England. Price 7s. 6d. The author states that the object is an attempt to account for the deposits of oil, oil shales and bituminous coal. It is suggested that coal accumulated collaterally with oil. Between the two extremes of coal and oil comes the oil shales. The theories of the author are developed in the first seven chapters. These are indicated in the conclusions formulated in Chapter VIII, which contain the following guides when searching for oil:

All dolomitized limestones are possible oil bearing provided they are foraminiferal, and that fossils of bottom living forms are absent. Diatomaceous clays or shales which do not contain fossil remains of bottom-living forms are worth of the closest attention. The carbon ra of coal as formulated by Fuller is plied. This is the percentage ratio fixed carbon to the volatile matter coal. The relative changes of finding are fixed at 100 when the carbon ra is between 50 and 55; they are 10 b tween 55 and 60, and probably less th 1 between 60 and 65. The lateral vari tion of coal seams deposited under mari conditions and having a favorable ra will be either into liquid petroleum d posits or into oil shale. When formatio containing abundant fossil wood overl a marine formation the lower one ma contain petroleum.

The book is well printed, easy to re and the matter most interesting.

GEOLOGISTS WILL MEET IN TULSA MARCH 24-2

The twelfth annual meeting of th American Association of Petroleum Geo ogists will be held in Tulsa on March 2 26, inclusive. It is expected to be th largest meeting in point of attendance th association has ever held.

The program has not been made up but it is already planned that on Thur day, the opening day, there will be symposium on the relation of structur to accumulation, which discussion will b carried into Friday. On Friday, also there will be a separate session for th paleontologic group, and on Saturday program of separate papers.

Officers will be nominated on Thursday and election will be held on Friday.

In the way of entertainment the Tulsa geologists are preparing a program which they aim to be a little better than any the geologists have yet enjoyed. Group dinners, golf and field trips will be among the features.

Postconvention Events

On Sunday, March 27, there will be a complimentary breakfast at Ponca City, followed by a buffalo dinner and attendant entertainment at 101 Ranch at Ponca City. Special Pullmans for those who indicate their desires at the registration desk at the Mayo Hotel will leave Saturday at 11 p. m. On Sunday, Monday and Tuesday, March 27, 28 and 29, Doctor Gould has planned a field trip through the Arbuckles, starting at Ardmore. The Pullmans will leave Ponca City Sunday afternoon and reach Ardmore Monday morning. The Ardmore Chamber of Commerce will give a smoker Monday evening. A field trip at Ardmore on Sunday to the Criner Hills and over the Ardmore Basin will be arranged for those not desiring to go to Ponca City. On Monday the Arbuckle Mountains will be visited and on Tuesday the oil fields near Healdton.

KENTUCKY TAX ON CRUDE TO U. S. SUPREME COURT

By Charles E. Kern

Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Feb. 19.—The Supreme Court of the United States will pass upon the validity of a Kentucky statute placing a tax on the value of crude oil produced in that State. This is the case of the Swiss Oil Corp., plaintiff in error, vs. William H. Shanks, auditor of public accounts.

The plaintiff in error holds that the tax on the production of crude oil imposed by the act of 1918 is a property tax and void, also that the Supreme Court will pass upon the nature and effect of the tax irrespective of its description or classification by the State court. Also that the act is void because it attempts to exempt from ad valorem tax the property subject to the production tax imposed by it.

The defendant in error contends that the tax imposed by the act is not a property tax, and that the Supreme Court of the United States will usually accept the construction of a State statute by the highest court of the State. Also that the plaintiff in error is not entitled to relief he seeks even though the act of 1918 should be held unconstitutional.

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The scheme of life is so arranged that some men have capital and wish to invest in leases, royalties, equipment, etc., while others have those things and wish to sell them.

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FRACTIONATION IN PETROLEUM REFINING

(Continued from Page 76)

is where the contact takes place, with little by bubbling action.

As already stated, any number of different kinds of fillings and arrangements of baffles have been employed to get this contact and most of them because we haven't known the old prior rectification art, 35 to 100 years old. As soon as those who did know it found out that there was a problem to be solved (more gasoline) they said "here is the way it should be done" and in consequence every refiner has now interested himself in sharp separation.

Many packed columns are good columns, but there is not one of them to the writer's knowledge that will give the sharp separation in the minimum of space found in a bubble plate column. That is the latter's sole advantage. Intimate contact is brought about in a minimum of space. One can use more good packed columns and get the same result; simply refractionate, but this costs money in equipment and fuel.

The ideal column is one where equilibrium between vapor and liquid takes place on each plate. But velocities would be too slow for commercial work, hence one has to be content with an approach to equilibrium.

Refiners take several cuts from a tower in many instances, it is true. But this is because they are satisfied with the results obtained. However, if instead of taking gas oil say from the base, kerosene from the middle and gasoline from the top of a single tower (assuming three cuts are desired) if an additional tower be installed, gas oil taken from the bottom of the first, kerosene from the bottom of the second and gasoline from the top of the second, sharper fractions will be secured, i.e., less gasoline in the kerosene and less kerosene in the gas oil. The latter is more important at the moment.

Natural Gasoline Plants

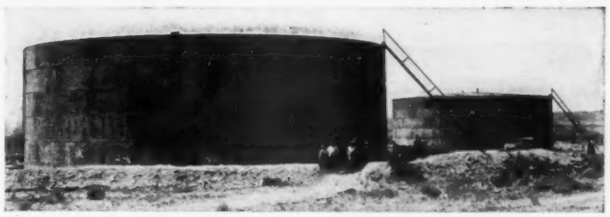
The same principles as the above apply to natural gasoline plants, except that only one column is necessary. One does not have the elaborate "hook-ups" of towers and liquid and varpor heat exchangers one has in a refinery.

In refinery practice a cut is not made between any two hydrocarbons. Boiling points are too close together for that. The top of the tower is set to give a particular endpoint gasoline desired. But as one descends in the paraffin hydrocarbons one finds the boiling points widely separated. To make the particular grade of natural gasoline desired today one cuts between propane (boiling point 49 degrees Fahrenheit) and butane (boiling point 33 degrees Fahrenheit). Ten years ago one would have probably cut higher and only thrown part of the butane in the natural gasoline. Sometime in the future we will probably cut lower and throw in some of the propane, or for particular uses, such as is being done today, throw in all the propane or some of the ethane.

Since today to make a Grade AA gasoline we cut between butane and propane, we must reflux propane. Therefore, such a temperature must be maintained at the top of the column as corresponds to the partial pressure of the propane. One can use high or low pressure but always the corresponding temperature must be maintained. One simply keeps on the vapor pressure curve of propane. With high pressure rectification moderate or normal temperatures can be used. If rectification is at low pressures then low temperatures must be used; obtained by expanding vapors and gas into the column say. Compression plant practice lends itself to high pressure rectification, while oil absorption plant practice lends itself to low temperature columns.

In rectifying natural gasoline one simply replaces a small amount of undesirable propane with a larger amount of desirable salable butane, hence one finds natural gasolines with 40 per cent upwards of butane, although gasoline with this content can be made in an efficient plant without rectification.

Rectifying columns are called stabilizers in the natural gasoline industry. This



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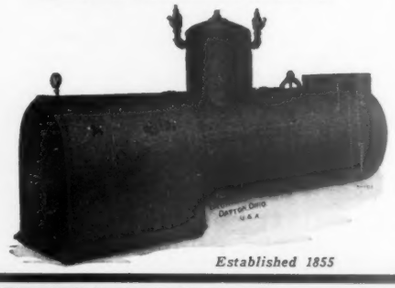

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term for a while clouded the real purpose of the columns, for the natural gasoline industry, even more so than the refining industry, generally speaking, understood little about the art of rectification in its earlier years. It is a much younger industry. But when one rectifies or stabilizes natural gasoline, he is doing just exactly what the refiner does when the latter puts his distillate through a bubble column, namely, makes sharp separations. Further, if the bubble tower is best for straight-run gasoline it is best for natural gasoline. The only difference is the natural gasoline operator handles a more volatile material and he is forced by the physical properties of natural gasoline (fixed by God or whoever fixes them) to adopt different temperatures and pressures in his column than the refiner uses.

All of this was taught by the old art: Coffey, Rogers, Barbet, Sorel, Hausbrand, Frasch, Linde; just to name a few of the older experimenters; while Dabrousky, Blau, Lacy, Snelling, Schill & Woidich, Von Groeling, De Brey, Thompson, Kerr and Bertsch have all applied rectification to natural gas or natural gasoline.

Increased Yield

The increase in yield brought about by rectification of natural gasoline is substantial. Probably something of the order of 5 to 15 per cent over the yield obtained in an efficient natural gasoline plant without rectification. Rectification is not an extraction process, of course. The plant extracts the gasoline (absorption or compression) and then the column rectifies it. For a column to work with full efficiency the plant must do likewise. Particularly must it extract all the butane and a proportion of the propane.

Then the column makes a cut between the two, discarding the propane overhead (with other light gases). The rectified gasoline is withdrawn at the base. Pure fractions at both ends are not possible. If the overhead is freed of gasoline constituents then some propane will remain in the base product and visa versa. This is true of all columns working on any mixtures. But the contamination is reduced to a satisfactory degree.

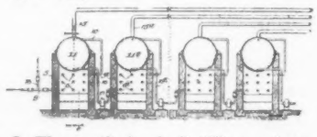
Today natural gasoline plants work with much better efficiency than formerly. Extraction is more complete. In former days many plants could scarcely have benefited by adding columns. They did not extract enough of the lighter ends, i.e., leave something for the column to work on.

Column adjustment is a simple matter. One adjusts temperatures to get the cuts desired. As far as capacities are concerned, columns have simply been fitted to refinery and natural gasoline plants. Enough data have been secured to build future columns on the experience of past performance. Experimentation has now provided a yardstick with which some calculations can be made. The diameter of the column fixes its capacities and the plates and ca s its efficiency.

As already stated, Sorel made calculations to fit binary mixtures (alcohol and water) almost 40 years ago, and W. K. Lewis later simplified them. But it is a different proposition with petroleums. There are too many hydrocarbons present. Some approximation can be made, of course. Necessary data are vapor compositions for the mixture and determinations of plate efficiency with the mixture under consideration.

Recent Patents

1,606,075. Art of Continuous Distillation of Petroleum Oils. Frank A. Howard, Elizabeth, N. J., assignor to Standard Development Co., a corporation of Delaware. Filed September 1, 1921. Serial No. 497,529. Seven claims. (Cl. 196—82.)



3. The method of distilling substantially water-free oil which comprises flow-

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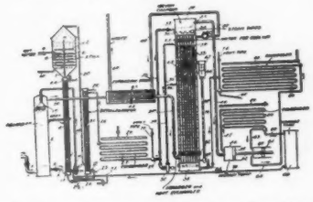
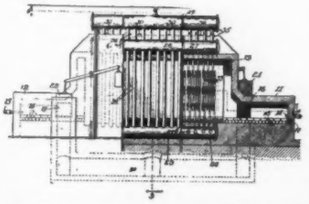
ing the oil in a confined stream through a highly heated zone to bring it rapidly to a temperature at which certain of its components are normally vapors, introducing an inert gaseous material into the stream of oil, discharging the stream of oil into a chamber in which a body of the oil is mantained at a point above the oil is maintained at a point above the incoming oil to travel through a tortuous path in the vapor space of the chamber before entering the body of oil, supplying heat to the oil in said chamber, causing the vapors evolved from the oil to travel in counter-current to the entering oil and withdrawing said vapors from the chamber.

1,607,942. Apparatus for the Abstraction of Gasoline. Charles Henry Brown, Breckenridge, Tex. Filed Dec. 5, 1923. Serial No. 678,690. Five claims. (Cl. 196—8.)



1. An apparatus of the class described, comprising in combination, means supplied with a quantity of absorber oil which is in excess of the quantity required to absorb the lower Baume gravity gasoline for causing absorption of the lower Baume gravity gasoline, means for supplying the first mentioned means with gasoline-laden gas, a still for separating said gasoline from the absorber oil, a heat exchanger connected with the first mentioned means for receiving the gas carrying only the higher Baume gravity gasoline for cooling said gas, a second absorber tank connected with the heat exchanger, means for introducing absorber oil into the top of the tank, and means connecting the heat exchanger with the body of the tank whereby the higher Baume gravity gasoline laden gas is charged into the bottom of said tank whereby the gas flows upward through the down stream of the absorber oil, a plurality of tubes located in the tank, chambers at the top and bottom of the tank and connected by the tubes but out of communication with the body of the tank, means connecting the space in the tank around the tubes with the lower chamber whereby the absorber oil charged with higher Baume gravity gasoline is permitted to enter the tubes whereby the heat caused by the absorber oil absorbing the higher Baume gravity gasoline is imparted to the tubes and to the absorber oil charged with higher Baume gravity gasoline passing through said tubes, and means for maintaining a lower pressure in said tubes and chambers than in the tank space around said tubes.

1,615,384. Art of Pyrogenetic Conversion of Hydrocarbon Oils. Frank A. Howard, Elizabeth, N. J.; Edgar M. Clark, New York, N. Y.; and James R. Carringer, Elizabeth, N. J., assignors to Standard Development Co., a corporation of Delaware. Filed May 23, 1921. Serial No. 471,724, and in the Netherlands January 15, 1921. 7 Claims. (Cl. 196—69.)



2. The process of pyrogenetic conversion of hydrocarbon oils into lower boiling point oils having dominant paraffinoid characteristics which consist in continuously flowing the hydrocarbon oil through a zone heated to a temperature sufficient to cause conversion of the oil at a rate

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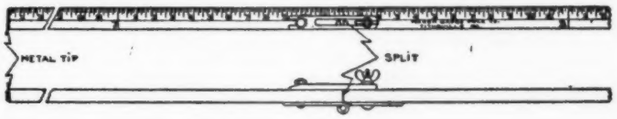

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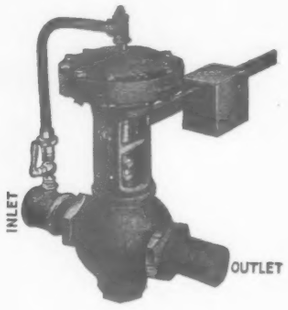

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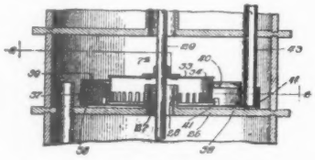
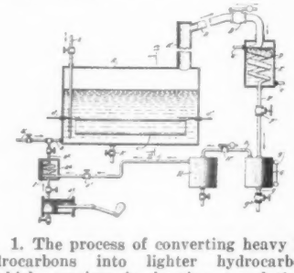
of at least 35 per cent per hour while maintaining the oil in communicating units through which it progressively flows, applying upon the oil a pressure sufficient to maintain it in the liquid phase and continually removing the vapors of light hydrocarbons from each of said units substantially immediately upon formation during passage through the heating zone.

1,615,400. Apparatus for the Distillation of Hydrocarbon Oils. Max G. Paulus and Oswald C. Brewster, Casper, Wyo., assignors to Standard Oil Co., Whiting, Ind., and Chicago, Ill., a corporation of Indiana. Filed February 27, 1924. Serial No. 695,459. 5 Claims. (Cl. 196—139.)



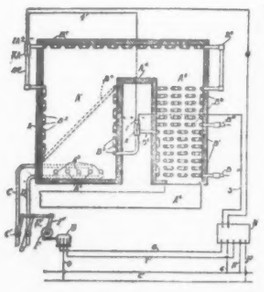
1. In a fractionating column, a transverse partition having a vapor passage therethrough, means for retaining a body of liquid on said partition, a cap over said vapor opening, said cap having an opening beneath the liquid level, means for rotating said cap, and means exterior to said cap for preventing formation of vortices in the liquid.

1,613,735. Process for Cracking or Converting Oils. Otto P. Amend, New York, N. Y. Filed March 3, 1922. Serial No. 540,725. 4 Claims. (Cl. 196—121.)



1. The process of converting heavy hydrocarbons into lighter hydrocarbons which consists in heating a relatively large body of such heavy hydrocarbons to a suitable cracking temperature, but considerably below the incandescent temperature of carbon, by a plurality of electric resistors of massive construction submerged in the oil and while maintaining the oil at a minimum autogenous pressure of 75 pounds.

1,615,482. Tube Oil-Heater Control. Foster M. Poole, Tulsa, Okla., assignor to the Brown Instrument Co., Philadelphia, Pa., a corporation of Pennsylvania. Filed June 21, 1926. Serial No. 117,360. 9 Claims. (Cl. 196—132.)



5. In operating an oil heater of the type comprising tubes connected to form an elongated path of oil travel and means for heating said tubes to thereby progressively heat the oil traveling along said path, the method which consists in varying the oil heating effect in joint response to variations in the heat absorption by the temperature of the oil in each of two different portions of said path.

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B

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Lientz, B. P., & Co.
Reid, Joseph, Gas Engine Co.

Bushings—Rotary Drive—
Wilson Oil Tools Corp.

C

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Miller Improved Gas Engine Co.

Compressors—Direct Driven Air and Gas—
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Miller Improved Gas Engine Co.

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Chicago Pneumatic Tool Co.
Clark Brothers Co.
Cooper, C. & G., Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
National Transit Pump & Machine Co.
Worthington Pump & Machinery Corp.

Compressors—Oil—Coke—
Porter & Company.

Concrete-Hardener and Waterproofer—
Master Builders Co.
W. K. M. Company

Condenser Boxes—
Kaw Steel Construction Co.
Petroleum Iron Works Co.

Condensers—
American Radiator Co.
Chicago Pneumatic Tool Co.
Ross Heater & Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.

Controllers—Automatic—
Brown Instrument Co.

Controllers—Liquid Level—
Fisher Governor Co., Inc.
Newton Process Mfg. Co.
Smith Separator Co.

Controllers—Pressure—
Smith Separator Co.

Controllers—Temperature—
Taylor Instrument Co.

Conveying & Elevating Machinery
Brady Conveyors Corp.

Conveyors—Bucket and Belt—
Brady Conveyors Corp.

Conveyors—Pneumatic—
Brady Conveyors Corp.

Conveyors—Portable Belt—
Barber-Greene Co.

Cooling Towers—Atmospheric—
Braun, C. F., & Co.

Cordage—
Bridgeport Machine Co.
International Supply Co.
Plymouth Cordage Co.

Core Drilling—
Longyear, E. J., Co.

Core Drills—
Elliott Core Drilling Co.
W. K. M. Company

Core Drills—Diamond—
Longyear, E. J., Co.
Sullivan Machinery Co.

Core Drills—Diamonds For—(See Diamonds for Core Drilling)—

Coring Tools—
Reed Roller Bit Co.
Wilson Oil Tools Corp.

Couplings—Flexible—
Nuttall, R. D., & Co.
Victaulic Co. of America.

Couplings—Plain End Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Couplings—Seamless Steel—
Harrisburg Pipe & Pipe Bending Co.

Coupling—Steel for Casing, Line Pipe, Drill Pipe and Tubing—
Dayton Pipe Coupling Co.
Smith, A. O., Corp.

Cracking Processes—
Graver Corp.
Kellogg, M. W., Co.
Universal Oil Products Co.

Crawler Treads—
Belle City Mfg. Co.

Crown Blocks—
International Derrick & Equipment Co.
Lucey Mfg. Corp.
Lufkin Fdy. & Mch. Co.
Moore, Lee C., & Co., Inc.
Parkersburg Rig & Reel Co.

Cups—Composition—
Lubrikup Company

Cups—Leather—
Auer, C. A.

Cutters—Pipe—
Borden Co.
Nye Tool & Machine Works.
Trimont Mfg. Co.

Cylinders—Compressor—
Hope Engineering & Supply Co.

Cylinder Stocks—
Barnsdall Refining Co.
Pure Oil Co.
Texas Company, The.

D

Dehydrating Process—
Barnickel, Wm. S., & Co.

Dephlegmators—
Graver Corp.
Newton Process Mfg. Co.
Smith, A. O., Corp.

Derricks—Steel—
Emsco Derrick & Equip. Co.
International Derrick & Equipment Co.
Marion Mch., Fdy. & Supply Co.
Moore, Lee C., & Co., Inc.
O'Brien Steel Construction Co.
Parkersburg Rig & Reel Co.

Derricks—Turnbuckle—
National Turnbuckle Derrick Co.
Symonds & Henson Rig Co.

Diamonds—For Core Drilling—
Patrick, R. S.

Die Heads—Automatic Screw Cutting—
Landis Machine Co.

Die Heads—Bolt Threading—
Bignall & Keeler Mch. Works.
Landis Machine Co.

Die Heads—Stationary Pipe Threading—
Bignall & Keeler Mch. Works.
Cox & Sons Co., The.
Landis Machine Co.

Diesel Engines (See Engines)—

Dies—Pipe Threading—
Bignall & Keeler Mch. Works.
Cox & Sons Co., The.
Landis Machine Co.
Nye Tool & Machine Works.
Walworth Co.

Direct Driven Pumps (See Pumps)

Disc Bits (See Bits—Disc)—

Ditchers—Pipe Line—
Barber-Greene Co.
Buckeye Traction Ditcher Co.

Draw Works—
Lucey Mfg. Corp.
Lufkin Fdy. & Mch. Co.
National Supply Co.
Titusville Iron Works Co.

Drillers Hose (See Hose)—

Drilling & Fishing Tools—
Acme Fishing Tool Co.
Baash-Ross Tool Co.
Bovaird & Seyfang Mfg. Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Burns Tool Co.
Continental Supply Co.
Emsco Derrick & Equip. Co.
Hinderliter Tool Co.
Hughes Tool Co.
International Supply Co.
Larkin & Co.
Leidecker Tool Co.
Lucey Mfg. Corp.
Murray Tool & Supply Co.
Pelican Well Tool & Supply Co.
Oil Well Supply Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Spang & Co.
Star Drilling Machine Co.
U. S. Tool Co.
W. K. M. Company

Drilling Engines—(See Engines)—

Drilling Equipment—
Clark Brothers Co.
Hughes Tool Co.
O'Brien Steel Construction Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Star Drilling Machine Co.
W. K. M. Company

Drilling Machines—
Leidecker Tool Co.
Oil Well Supply Co.
Star Drilling Machine Co.

Drilling Tools—(See Drilling and Fishing Tools)—

Drills—Portable Air—
Chicago Pneumatic Tool Co.

Drive Shoes—
Bartlesville Supply Co.
Larkin & Co.

Drops and Seats—
Norris Brothers, Inc.

Drums (See Barrels)—

Dynamos—
Westinghouse Electric & Mfg Co.

E

Ejectors—
Penberthy Injector Co.

Electrical Equipment—
Fairbanks-Morse & Co.
General Electric Co.
Pyle National Co.
Wico Electric Co.

Electric Drilling Equipment—
General Electric Co.
Lucey Mfg. Corp.
Westinghouse Electric & Mfg Co.

Electric Steel Castings (See Castings—Electric Steel)—

Elevators—Casing and Tubing—
Bovaird Supply Co.
Bridgeport Machine Co.
Dunn Mfg. Co.
Lucey Mfg. Corp.
Wilson Oil Tools Corp.

Elevators—Rod—
B. & A. Specialty Co.
D. & B. Pump & Supply Co.
Dunn Mfg. Co.

Enamels—
Arco Company, The.
Detroit Graphite Co.

Engineers—Consulting and Contracting—
Brooks Engineering Corp.
Hope Engineering & Supply Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
National Petroleum Engineering Corp.
Power Specialty Co.
Westcott & Greis.
Widdell Engineering Co.

Engineers—Fire Protection—
Brooks Engineering Corp.
Foamite-Childs Corp.

Engineers—Oil Buildings—
Austin Co.
International Derrick & Equipment Co.

Engineers—Oil Treating—
Barnickel, Wm. S., & Co.

Engines—Crude Oil—
Continental Supply Co.

Engines—Diesel—
Bessemer Gas Engine Co.
Foos Gas Engine Co.
McIntosh & Seymour Corp.
Worthington Pump & Machinery Corp.

Engines—Drilling—
Ajax Iron Works.
Anderson Engine & Fdy. Co.
Bessemer Gas Engine Co.
Bovaird & Seyfang Mfg. Co.
Brownell Co., The.
Buda Co.
Buffalo Gasolene Motor Co.
Clark Bros. Co.
Climax Engineering Co.
Franklin Valveless Engine Co.
Hercules Motor Corp.
Pattin Bros. Co.
Power Mfg. Co.
Republic Supply Co.
Titusville Iron Works Co.

Engines—Gas—
Bessemer Gas Engine Co.
Buda Co.
Buffalo Gasolene Motor Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Climax Engineering Co.
Continental Supply Co.
Cooper, C. & G. Co.
Emsco Derrick & Equip. Co.
Foos Gas Engine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
International Supply Co.
Jones, S. M., Co.
Marion Mch., Fdy. & Supply Co.
Miller Improved Gas Engine Co.
National Supply Co.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Titusville Iron Works Co.
Waukesha Motor Co.

Engines—Gasoline—
Buda Co.
Buffalo Gasolene Motor Co.
Climax Engineering Co.
Continental Motors Corp.
Fairbanks-Morse & Co.
Hercules Motor Corp.
International Harvester Co. of America.
Waukesha Motor Co.

Engines—Oil—
Bessemer Gas Engine Co.
De La Vergne Machine Co.
Fairbanks-Morse & Co.
Franklin Valveless Engine Co.
Ingersoll-Rand Co.
International Harvester Co. of America.
McIntosh & Seymour Corp.
National Supply Co.
Oil Well Supply Co.
Power Mfg. Co.
Reid, Joseph, Gas Engine Co.

Engines—Semi-Diesel, Oil—
Chicago Pneumatic Tool Co.

Engines—Steam—
Ajax Iron Works.
Frick-Reid Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.

Evaporators—
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.

F

Fabricators for Gasoline Plants and Refineries—
Stearns-Roger Mfg. Co.

Fasteners—Belt—
Crescent Belt Fastener Co.

Filters—Oil—
Burt Mfg. Co.

Fire Extinguishers—
Foamite-Childs Corp.

Fire Extinguishers—Recharge Service—
Foamite-Childs Corp.

Fishing Tools (See Drilling and Fishing Tools)—

Fittings—Dropped Forged Steel—
Vogt, Henry, Machine Co.

Fittings—Forged Steel—
Central Forging Co.

Fittings—Malleable & Cast Iron—
Bovaird Supply Co.
Crane Co.
Frick-Reid Supply Co.
Walworth Co.

Fittings—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Kennedy Valve Mfg. Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.
Victaulic Co. of America.
Walworth Co.

Fittings—Pipe Acid Proof—
Barber Asphalt Co.
Duriron Company.

Fittings—Steel—
Dayton Pipe Coupling Co.
Kerotest Mfg. Co.
Ohio Steel Foundry Co.
Walworth Co.

Flanges—Brass, Iron and Steel—
Jefferson Union Co.
Metric Metal Works.
Walworth Co.

Flange Unions—
Dart, E. M., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Walworth Co.

Flashlights—
National Carbon Co.

Floating Roofs and Decks—
Chicago Bridge & Iron Works.
Gallagher Co.

Floodlights—
Pyle-National Co.

Forging Billets—
Andrews Steel Co.
Harrisburg Pipe & Pipe Bending Co.
Happenstall Forge & Knife Co.

Forging—
Champion Machine & Forging Co.

Fuel Oil (See Oil—Fuel)—

Fullers Earth—
Sinclair Refining Co.

G

Gas Holders—
Chicago Bridge & Iron Works.

Gaskets—
McCord Radiator & Mfg. Co.

Gaskets—Fibre—
Garlock Packing Co.

Gas Masks & Safety Appliances—
Mines Safety Appliance Co.

Gasoline—
Crown Central Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.

Gasoline—Natural—
Chestnut & Smith Corp.
Warren Petroleum Co.

Gasoline Plant Equipment—
Bessemer Gas Engine Co.
Clark Brothers Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.
Widdell Engineering Co.

Gas Regulating Casinghead—
Davis, G. M., Regulator Co.

Gas Scrubbers—
Newton Process Mfg. Co.

Gauge Poles—
Marsh Gauge Pole Co.

Gauges—Automatic Tank—
Brooks Engineering Co.

Gauges—Draft—
Brown Instrument Co.

Gauges—Oil—
Penberthy Injector Co.

Gauges—Pressure and Vacuum—
Bristol Co.
Brown Instrument Co.
Equitable Meter & Mfg. Co.
Foxboro Co., Inc.
Metric Metal Works.

Gauges—Test—
Equitable Meter & Mfg. Co.
Metric Metal Works.

Gear Driven Pumps (See Pumps)

Gears—Cut—
Nuttall, R. D., & Co.

Gears—Reduction—
Emsco Derrick & Equip Co.
Nuttall, R. D., & Co.

Gears—Reverse—
Emsco Derrick & Equip Co.

Generators—Electric—
Westinghouse Electric & Mfg. Co.
Lincoln Electric Co.

Generators—Acetylene—
Oxweld Acetylene Co.

Generators—Turbine—
Moon Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.

Governors—
Equitable Meter & Mfg. Co.
Gardner Governor Co.

Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.

Grating—Steel—
Blaw-Knox Co.

Grey Iron Castings (See Castings)

H

Hammers—Chipping and Calking Pneumatic—
Chicago Pneumatic Tool Co.

Hammers—Riveting Pneumatic—
Chicago Pneumatic Tool Co.

Hangers—Iron and Steel —
Continental Supply Co.
Dodge Mfg. Corp.

Hangers—Tubing—
Hercules Tool Co.

Hatches—Gauge and Thief—
Oil Conservation Engineering Co.

Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.

Heat Interchangers—Fluid—
Braun, C. F., & Co.
Ross Heater & Mfg. Co., Inc.

Hoists—Pneumatic, Geared and Universal—
Chisholm-Moore Mfg. Co.
Yale & Towne Mfg. Co.

Hoists—Portable—
Chisholm-Moore Mfg. Co.
Ford Chain Block Co.
Lufkin Fdy. & Mch. Co.
Sullivan Machinery Co.
Wright Mfg. Co.
Yale & Towne Mfg. Co.

Hooks for Rods and Tubing—
B. & A. Specialty Co.
Dean Mfg. Co.

Hose—
Fenwick-Reddaway Mfg. Co.

Hose—Drillers—
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Hose—Oil Suction and Discharge—
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Hose—Rubber—
Goodyear Tire & Rubber Co.
United States Rubber Co.

Hypochlorite of Lime—
Mathieson Alkali Works, Inc.

I

Injectors—
Penberthy Injector Co.

Inspectors—Pipe—
Hunt, Robert W., Co.

Insulation Materials—
General Insulating & Mfg. Co.
Johns-Manville Corp.

Insurance—Fire—
Oil Insurance Association.

Insurance—Tornado—
Oil Insurance Association.

Iron—Ingot—
American Rolling Mill Co.

J

Jacks—Hydraulic —
Bridgeport Machine Co.

Jacks—Lifting—
Templeton, Kenly & Co., Ltd.

Jacks—Pumping—
American Mfg. Co. of Texas.
American Well Works.
Bessemer Gas Engine Co.
Frick-Reid Supply Co.
Jensen Bros. Mfg. Co., Inc.
Jones, S. M., Co.
Kansas City Hay Press Co.
Norris, W. C.
Oil Well Accessories Co.
Spang & Co.

Jars—
Bridgeport Machine Co.
Spang & Co.

Jar Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

K

Kerosene—
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.

L

Lacquers—
Arco Company, The.

Lanterns—Electric—
Delta Electric Co.

Lead and Mixed Metal Products—
Eagle Picher Lead Co.
National Lead Co.

Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.

Lead Wool and Containers—
Eagle-Picher Lead Co.

Lighting Equipment—
Pyle-National Co.
Westinghouse Electric & Mfg. Co.

Litharge—
Eagle-Picher Lead Co.
National Lead Co.

Loaders—Trucks—
Barber-Greene Co.

Long Distance Telephone—
American Telephone & Telegraph Co.

Lubricating Devices—
McCord Radiator & Mfg. Co.

Lubricators—
Ajax Iron Works.
Lunkenheimer Co.

Lubricators—Force Feed—
Hills-McCanna Co.
McCord Radiator & Mfg. Co.
Manzel Brothers Co.

M

Machine Tools—
Ryerson, Jos. T., & Son, Inc.

Manholes—Tanks—
Brooks Engineering Corp.

Manifolds—
Reid, Joseph, Gas Engine Co.

Metal—Non-Ferrous—
Haynes-Stellite Co.

Meters—Boiler Performance—
Brown Instrument Co.

Meters—Gas—
Equitable Meter & Mfg. Co.
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M., Co.
Westcott & Greis.

Meters—Electric—
Brown Instrument Co.

Meters—Gasoline—
Pittsburgh Meter Co.

Meters—Oil —
Pittsburgh Meter Co.

Molded Goods—Rubber—
Garlock Packing Co.
Goodyear Tire & Rubber Co.

Motors—Electric—
Fairbanks-Morse & Co.
General Electric Co.
Lincoln Electric Co.
Westinghouse Electric & Mfg. Co.

Motors—Gasoline (See Engines—Gasoline)—

Mud Flumes—Bolted Steel—
Gallagher Co.

N

Naphtha—
Pure Oil Co.

Natural Gasoline (See Gasoline—Natural)—

Natural Gasoline Plant Equipments—
Campbell, J. A.
Cooper, C. & G., Co.
Griscom-Russell Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.
Smith Separator Co.
Westcott & Greis

Nitrogen—
Linde Air Products Co.

Nozzles—Spray—
Power Plant Equipment Co.

O

Oil and Gas Pipeline Construction—
Hope Engineering & Supply Co.

Oil Burners (See Burners—Oil)—

Oil Field Equipment—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Gaso Pump & Burner Mfg. Co.
Haynes Stellite Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kaw Steel Construction Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Trumble Gas Trap Co.
W. K. M. Company

Oil—Fuel—
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The.

Oil—Gas—
Crown Central Petroleum Co.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The.

Oil—Lubricating—
Barnsdall Refining Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Humble Oil & Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The.

Oil Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Oiling Devices —
Lunkenheimer Co.

Oil Meters (See Meters)—

Oil Piping Equipment (See Fittings)—

Oil Reclaiming Process—
Barnickel, William S., & Co.

Oil Well Cementing—
Halliburton Oil Well Cementing Co.

Oil Well Tools—
D. & B. Pump & Supply Co.
Hinderliter Tool Co.
Reed Roller Bit Co.
Titusville Forge Co.
U. S. Tool Co.

Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.

Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.

Packers—
Goodyear Tire & Rubber Co.
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.
United States Rubber Co.

Packing—
Crane Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville Corp.

Packing—Metallic—
Crane Packing Co.
Garlock Packing Co.

Paints—
Aluminum Co. of America.
American Asphalt Paint Co.
Arco Company, The.
Detroit Graphite Co.
Dixon, Joseph, Crucible Co.
Du Pont de Nemours, E. I. & Co., Inc.
Eagle-Picher Lead Co.
Eclipse Paint & Mfg. Co.
Hill, Hubbell & Co.
National Lead Co.

Pipe—Cast Iron—
Greenspon's, Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.

Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.
National Lead Co.

Pipe—Steel—
Allegheny Steel Co.
Central Tube Co.
Continental Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Murray Tool & Supply Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T., & Sons, Inc.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Taubman Supply Corp.
Wheeling Steel Corp.

Pipe—Wrought Iron—
Byers, A. M., Co.
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
South Chester Tube Co.
Taubman Supply Corp.

Pipe and Nipple Threading Machines—
Bignall & Keeler Mch. Works.
Cox & Sons Co., The.
Landis Machine Co.
Ryerson, Jos. T., & Sons, Inc.

Pipe Clamps (See Clamps—Pipe)

Pipe Cleaning Machines—
W. K. M. Company

Pipe Grips—
Larkin & Co.

Pipe Headers—
National Tube Co.
Newton Process Mfg. Co.

Pipe Line Coatings—
Hill, Hubbell & Co.

Pipe Line Construction Tools—
National Transit Pump & Machine Co.
W. K. M. Company

Pipe Line Equipment—
Gaso Pump & Burner Mfg. Co.

Pipe Screwing Machines—
Buckeye Traction Ditcher Co.

Pipe Suspension Device—
Stearns-Roger Mfg. Co.

Pipe Threaders—Power—
Williams Tool Corp.

Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works.
Ridge Tool Co.
Walworth Co.

Piping Fabricated—
Midwest Piping & Supply Co.

Piping—Hard Rubber—
United States Rubber Co.

Piping—Steel and Iron—
Crane Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Power Piping Co.

Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.

Pistons—Expansion—
Wilson Oil Tools Corp.

Pistons—Slush Pump—
Guiberson Corp.

Plugs—Bottom Water—
Guiberson Corp.

Potention Meters—Portable—
Brown Instrument Co.

Pre-Heaters—
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.

Preservatives—Asphalt—
American Asphalt Paint Co.

Pulleys—Wood, Iron and Steel—
Continental Supply Co.
Dodge Mfg. Co.

Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Rock Island Plow Co.
Safety Pulling Machine Co.

Pumpers—Long Stroke—
Oil Well Accessories Co.

Pumping and Pulling Motors—Electric—
General Electric Co.
Westinghouse Electric & Mfg. Co.

Pumping Equipment—
American Well Works.
Axelson Machine Co.
Byron Jackson Pump Mfg. Co., Inc.
D. & B. Pump & Supply Co.
Goulds Pumps, Inc.
Jones, S. M., Co.
Myers, F. E. & Bro. Co.
Norris Brothers, Inc.
Northrup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Ratigan, J. P., Co.
Waukesha Motor Co.
W. K. M. Company

Pumping Gear Units—
Nuttall, R. D., & Co.

Pumping Powers—
Bessemer Gas Engine Co.
Buda Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Marion Mch., Fdy. & Supply Co.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spence Machine Co.
Titusville Iron Works Co.

Pumping Units—
Lufkin Fdy. & Mch. Co.

Pumps—Acid Proof—
Duriron Company.

Pumps—Boiler Feed—
Ajax Iron Works.
Byron Jackson Pump Mfg. Co., Inc.
Fairbanks-Morse & Co.
Gardner Pumps, Inc.
Goulds Pumps, Inc.
Oil Well Supply Co.
Smith Separator Co.

Pumps—Centrifugal—
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Fairbanks-Morse & Co.
Goulds Pumps, Inc.
Smith Separator Co.
Worthington Pump & Machinery Corp.

Pumps—Direct Driven —
Bessemer Gas Engine Co.
Smith Separator Co.

Pumps—Electric—
Prescott Co.
Smith Separator Co.

Pumps—Fuel Oil Service —
Blackmer Pump Co.
Goulds Pumps, Inc.
Northrup Fire Apparatus Co.
Smith Separator Co.

Pumps—Fuel Oil Transfer—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.

Pumps—Gasoline and Oil for Filling Stations—
Gilbert & Barker Mfg. Co.

Pumps—Gear Driven—
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.
Smith Separator Co.

Pumps—Hot Oil—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Goulds Pumps, Inc.
Smith Separator Co.

Pumps—Pipe Line—
Byron Jackson Pump Mfg. Co., Inc.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
National Transit Pump & Machine Co.
Prescott Co.
Worthington Pump & Machinery Corp.

Pumps—Portable—
Gaso Pump & Burner Mfg. Co.

Pumps—Power—
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
Myers, F. E., Bro. & Co.
National Transit Pump & Machine Co.
Prescott Co.
Smith Separator Co.
Waukesha Motor Co.

Pumps—Refinery—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.
Smith Separator Co.

Pumps—Rotary—
Blackmer Pump Co.
Goulds Pumps, Inc.
National Fire Apparatus Co.
Roots, P. H. & F. M., Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.
Smith Separator Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam—
Fairbanks-Morse & Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.
Smith Separator Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.
Smith Separator Co.

Pumps—Water—
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
Northern Fire Apparatus Co.
Prescott Co.
Smith Separator Co.

Pyrometers—
Brown Instrument Co.

Pyrometer Thermocouples—
Brown Instrument Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Nye Tool & Machine Works
Toledo Pipe Threading Machine Co.

Ratchet Reamers—
Nye Tool & Machine Works.

Ratchet Stocks and Dies—
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Equitable Meter & Mfg. Co.
Metric Metal Works.
Pittsburgh Meter Co.

Refinery Equipment—
American Radiator Co.
Biggs Boiler Works Co.
Blaw-Knox Co.
Braun, C. F., & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works.
Graver Corp.
Griscom-Russell Co.
Kellogg, M. W., Co.
Leader Iron Works
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Appliance Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Reid, Joseph, Gas Engine Co.
Ross Heater & Mfg. Co., Inc.
Ross-Meehan Foundries.
Smith, A. O., Corp.
Smith Separator Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis.
Widdell Engineering Co.

Refrigerating Machinery—
Carbondale Machine Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Brown Instrument Co.
Fisher Governor Co.
Griffiths Machine Works.
Smith Separator Co.

Regulators—Gas—
Chaplin-Fulton Mfg. Co.
Davis, G. M., Regulator Co.
Equitable Meter & Mfg. Co.
Fisher Governor Co.
Metric Metal Works.
Smith Separator Co.

Rental—Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons —
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.
Symonds & Henson Rig Co.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

Rods—Polish—
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Jones, S. M., Co.
Sheffield Steel Corp.

Rods—Sucker—
Axelson Machine Co.
D. & B. Pump & Supply Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Sheffield Steel Corp.

Rods—Valve—
Jones, S. M., Co.

Roofing Asbestos—
Johns-Manville Corp.

Roofing—Galvanized Iron—
American Rolling Mill Co.

Roofing—Rust Resisting—
Allegheny Steel Co.

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manila—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Broderick & Bascom Rope Co.
International Supply Co.
Jarecki Mfg. Co.
Wickwire Spencer Steel Corp.
Leschen, A., & Sons, Rope Co.
Williamsport Wire Rope Co.

Rotary Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Rotary Drilling Equipment—
Emsco Derrick & Equip. Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Co.
Lufkin Fdy. & Mch. Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co.

Rotary Lines (See Rope—Wire)—

Rotary Rods—
Reed Roller Bit Co.

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.
W. K. M. Company

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Lines—Manila—
Ajax Rope Co., Inc.
Plymouth Cordage Co.

Sand Lines—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Broderick & Bascom Rope Co.
Hazard Mfg. Co.
Wickwire Spencer Steel Corp.

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws Temper—
Burns Tool Co.

Securities—Oil—
Pforzheimer, Carl H., & Co.

Separators—Centrifugal—
Miller, Max B., & Co.

Separators—Gas and Oil—
Smith Separator Co.

Separators—Steam—
Vois Engineering Equipment Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Corrugated, Black and Galvanized—
American Rolling Mill Co.
American Sheet & Tin Plate Co.
Ryerson, Jos. T., & Son, Inc.

Sheets—Iron—
American Rolling Mill Co.

Sheets—Steel—
American Rolling Mill Co.
American Sheet & Tin Plate Co.
Sheffield Steel Corp.

Shingles—Asbestos—
Johns-Manville Corp.

Siding—Galvanized Iron—
American Rolling Mill Co.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Smoke Stacks—
Donovan Boiler Works

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Sucker Rod—
Gulberson Corp.

Soda Ash—
Mathieson Alkali Works, Inc.

Soda—Caustic—
Mathieson Alkali Works, Inc.

Solders—Bar and Wire—
Eagle-Picher Lead Co.
Hoyt Metal Co.

Spears—
Acme Fishing Tool Co.

Sprockets—Power Transmission—
Ajax Iron Works
Chain Belt Co.

Stands—Vise—
Nye Tool & Machine Works

Steel—All Kinds—
Ryerson, Jos. T., & Son, Inc.

Steel—Alloy—
Central Alloy Steel Co.
Timken Roller Bearing Co.

Steel—Bit—
Central Alloy Steel Co.

Steel—Hot Rolled Strip—
Central Alloy Steel Co.

Steel—Special—
Andrews Steel Co.
Central Alloy Steel Co.

Steel—Stainless—
Allegheny Steel Co.

Steel Fabricators—Structural—
Austin Co.
Braden Steel & Winch Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Steel Plate Construction—
Chicago Bridge & Iron Works
Graver Corp.
Kaw Steel Construction Co.
Leader Iron Works
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Steel Wheel and Tug Rims—
International Derrick & Equipment Co.

Still Insulation—
Celite Products Co.

Stills—
Biggs Boiler Works Co.
Blaw-Knox Co.
Graver Corp.
Kaw Steel Construction Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Smith, A. O., Corp.
Vogt, Henry, Machine Co.
Widdell Engineering Co.

Stocks and Dies—
Borden Co.
Nye Tool & Machine Works
Toledo Pipe Threading Machine Co.

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sulphuric Acid—
Eagle-Picher Lead Co.

Superheaters—Steam—
Power Plant Equipment Co.

Swabs—
Burt Corporation.
Gulberson Corp.
W. K. M. Company

Swedge Nipples—
Dresser, S. R., Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swing Line Equipment—
Brooks Engineering Corp.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tachometers—
Brown Instrument Co.

Tank Equipment—
Brooks Engineering Corp.
Oil Conservation Engineering Co.

Tank Insulation—
Celite Products Co.

Tanks—Bolted—
Butler Mfg. Co.
Columbian Steel Tank Co.
Gallagher Co.
Maloney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station—
Butler Mfg. Co.
Graver Corp.
Leader Iron Works

Tanks—Cylindrical—
Graver Corp.
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works
Graver Corp.

Tanks—Field Storage—
American Car & Foundry Co.
Biggs Boiler Works Co.
Chicago Bridge & Iron Works
Donovan Boiler Works
Graver Corp.
Kaw Steel Construction Co.
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburgh-Des Moines Steel Co.
Riter-Conley Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Graver Corp.
Kaw Steel Construction Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Chicago Bridge & Iron Works
Donovan Boiler Works
Graver Corp.
Kaw Steel Construction Co.
Newton Process Mfg. Co.

Tanks—Truck—
Butler Mfg. Co.
Columbian Steel Tank Co.
Leader Iron Works

Tanks—Underground—
Butler Mfg. Co.
Gilbert & Barker Mfg. Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.

Tanks—Welded—
Chicago Bridge & Iron Works
Graver Corp.

Taper Taps—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.
States Engineering Co.
W. K. M. Company

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Brown Instrument Co.
Foxboro Co., Inc.
Taylor Instrument Co.

Thermometers—Resistance
Brown Instrument Co.

Threading Machines—
Bignal & Keeler Machine Wks.
Cox & Sons Co., The
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tires—Automobile—
Continental Supply Co.

Tires—Pneumatic & Solid—
Kelly-Springfield Tire Co.

Tires—Truck—
Kelly-Springfield Tire Co.

Tongs—
Bridgeport Machine Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing—
Dunn Mfg. Co.
Gulberson Corp.

Tongs—Chain Pipe—
Armstrong Bros. Tool Co.
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Rotary—
Dunn Mfg. Co.

Tongs—Tool Joint—
Gulberson Corp.
Hughes Tool Co.
Reed Roller Bit Co.

Tongs—Tubing—
Dunn Mfg. Co.

Tool Boxes—
Gallagher Co.

Tool Chests—Pipe—
Nye Tool & Machine Works

Tool Joints—
Bridgeport Machine Co.
Federal Supply Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Pelican Well Tool & Supply Co.
Regan Forge & Engineering Co.
W. K. M. Company

Torches—
Oxweld Acetylene Co.

Towers—
Biggs Boiler Works Co.
Graver Corp.

Tractors—
Cleveland Tractor Co.
International Harvester Co. of America.

Trailers—
Nabors, W. C., Co.
Spencer Trailer Co.

Transmission Belt—Rubber—
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Transmission Lining—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Lufkin Fdy. & Mch. Co.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Treaters—Vertical Boom—
Barber-Greene Co.

Trucks—Motor—
General Motors Truck Co.
Graham Brothers.
International Harvester Co. of America.

Tubes—Boiler, Charcoal Iron—
Byers, A. M., Co.
Reading Iron Co.

Tubes—Boiler Steel—
Allegheny Steel Co.
Continental Supply Co.
National Tube Co.
Ryerson, Jos. T., & Son, Inc.

Tubing—
Babcock & Wilcox Tube Co.
Byers, A. M., Co.
Central Tube Co.
Continental Supply Co.
National Tube Co.
Pittsburgh Steel Products Co.
Reading Iron Co.
Republic Iron & Steel Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Wheeling Steel Corp.

Tubing Catchers—
Dunn Mfg. Co.
Gulberson Corp.
W. K. M. Company

Tubing Protectors (See Rod Guides)—

Tubular Goods—
Babcock & Wilcox Tube Co.
Central Tube Co.
Continental Supply Co.
Oil Well Supply Co.
Pittsburgh Steel Products Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.
Wheeling Steel Corp.

Tubular Goods—Wrought Iron—
Byers, A. M., Co.
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

U

Underreamer Body Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Gulberson Corp.
Wilson Oil Tools Corp.

Unions—
Central Forging Co.
Dart, E. M., Mfg. Co.
Jefferson Union Co.

V

Valves—Automatic Control—
Brown Instrument Co.

Valves—Blow-Off—
Homestead Valve Mfg. Co.
Merco Nordstrom Valve Co.

Valves—Brass and Bronze—
Homestead Valve Mfg. Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Co.

Valves—Cast Steel—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.
Walworth Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.

Valves—Drop Forged Steel—
Edward Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves—Gate—High and Low Pressure—
Barber Asphalt Co.
Chapman Valve & Mfg. Co.
Crane Co.
Darling Valve & Mfg. Co.
Kennedy Valve Mfg. Co.
Kerotest Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Murray Tool & Supply Co.
Powell, Wm., Co.

Valves—Iron—
Chapman Valve Mfg. Co.
Lunkenheimer Co.
Merco Nordstrom Valve Co.
Reading Steel Casting Co.
Walworth Co.

Valves—Pump—
Garlock Packing Co.
United States Rubber Co.

Valves—Relief—Supersensitive—
Davis, G. M. Regulator Co.

Valves—Standing—
W. K. M. Company

Valves—Steel—
Chapman Valve Mfg. Co.
Edward Valve Mfg. Co.
Kerotest Mfg. Co.
Lunkenheimer Co.
Metric Metal Works.
Powell, Wm., Co.
Reading Steel Casting Co.

Valves—Tank Tent—
Brooks Engineering Corp.
Oil Conservation Engineering Co.

Valves—Working Barrel—
Axelson Machine Co.
D. & B. Pump & Supply Co.
Hough, Charles N., Mfg. Co.
Norris Brothers, Inc.
Northrup Equipment Co.
Oil Well Supply Co.
W. K. M. Company

Varnishes—
Arco Company, The
Detroit Graphite Co.

Ventilators—Roof—
Burt Mfg. Co.

Vises—Bench—
Nye Tool & Machine Works

Vises—Pipe—
Nye Tool & Machine Works

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Emsco Derrick & Equipment Co.
Lufkin Fdy. & Mch. Co.
Moore, Lee C., & Co., Inc.

Water Cooling Systems—
Power Plant Equipment Co.

Waterproofing Materials—
Celite Products Co.

Water Softeners and Filters—
Butler Mfg. Co.
Graver Corp.

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welding Accessories—Electric—
General Electric Co.
Wilson Welder & Metals Co.

Welding Machines—Electric—
General Electric Co.
Lincoln Electric Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welders—Electric Arc—
Wilson Welder & Metals Co.

Welding Supplies—
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Haynes Stellite Co.
Lincoln Electric Co.
Oxweld Acetylene Co.
Page Steel & Wire Co.
Wilson Welder & Metals Co.

Well Shooting—
Eastern Torpedo Co.
Kinley, M. M.
Zero Hour Torpedo Co.

Wheels—Pipe Cutter—
Nye Tool & Machine Works

Winches—
Braden Steel & Winch Co.
Brooks Engineering Co.
Oil Conservation Engineering Co.
Rock Island Plow Co.
W. K. M. Company

Wire Lines (See Cables—Steel)—

Wood Patterns and Models—
Gaso Pump & Burner Mfg. Co.

Working Barrels—
Axelson Machine Co.
D. & B. Pump & Supply Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Norris, W. C.
Northrup Equipment Co.
Oil Well Supply Co.

Wrenches—Closet Spuds—
Nye Tool & Machine Works

Wrenches—Drop Forged—
Williams, J. H., & Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.
Nye Tool & Machine Works

Z

Zinc Oxide—
Eagle-Picher Lead Co.

Oklahoma-Kansas and Eastern Pipeline Report

OKLAHOMA-KANSAS
Pipeline Statement for December

Runs

	Month	Dy.Av.
*Prairie Pipe Line Co....	4,340,000	140,000
Gulf Pipe Line Co.	1,453,985	46,903
Texas Pipe Line Co.	602,792	19,445
Magnolia Pet. Co.	1,457,463	47,015
Empire Pipe Line Co....	910,550	29,373
Cosden Pipe Line Co. ...	999,728	32,249
Sinclair Pipe Line Co....	2,323,636	74,956
*Other lines	9,455,000	305,000
Total December	21,543,154	694,941
Total November	20,476,407	682,547
Difference	1,066,747	12,394

Shipments

	Month	Dy.Av.
†Prairie Pipe Line Co. ..	4,331,958	139,740
Gulf Pipe Line Co.	1,269,578	40,954
Texas Pipe Line Co.	595,563	19,212
Magnolia Pet. Co.	1,423,403	45,916
Empire Pipe Line Co. ...	711,950	22,966
Cosden Pipe Line Co.....	950,748	30,669
†Sinclair Pipe Line Co. ..	2,566,329	82,785
*Other lines	9,052,000	292,000
Total December	20,901,529	674,242
Total November	20,551,498	685,050
Difference	350,031	12,808

Stocks

*Prairie Oil & Gas Co.....	27,725,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line and Gypsy Oil....	7,298,053
The Texas Company	2,955,175
Magnolia Pet. Co.	3,202,015
Empire Pipe Line Co.	2,328,586
Cosden Pipe Line Co.	2,241,305
*Sinclair Crude Oil Pur. Co.	18,000,000
Carter Oil Co.	13,664,336
*Other lines	9,000,000
Total December	88,414,470
Total November	87,423,654
Difference	991,816

†Sinclair Pipe Line shipments include Texas and Wyoming crude.
*Estimated.
Note: Stocks do not include approximately 3,599,000 bbls. of crude oil held in storage on private tank farms and leases, and 2,372,000 bbls. of Texas Panhandle crude in storage in Oklahoma and Kansas.

EASTERN PIPELINES
Runs From Wells

In the following table will be found the regular receipts from wells by various pipelines in New York, Kentucky and Indiana for November and December:

	Nov. '26	Dec. '26
Nat. Transit	140,264.86	136,129.26
S. W. Pa. Pipe	94,310.00	99,307.51
Eureka P. L.	369,220.37	395,965.82
Buckeye P. L. (Macksburg)	302,484.85	319,348.62
Buckeye P. L. (Cleveland)	9,295.62	10,989.80
Buckeye P. L. (Lima, etc.)	109,383.71	116,321.22
Indiana P. L.	7,406.75	9,350.40
Cumberland P. L. ..	279,242.27	274,563.00
N. Y. Transit	20,366.98	21,720.20
Tidewater P. L. ...	171,709.18	170,862.42
Pure Oil	165,901.27	169,509.82
Emery P. L.	54,032.97	53,943.26
Indian Ref.	101,647.46	17,645.33
Paragon Dev.	22,246.13	19,826.89
Pittsburgh P. L. ...	5,699.64	5,675.78
Total	1,853,212.06	1,821,415.33
Daily average	61,773.73	58,755.33

Note—Indian Refining Co. also reported other receipts of 325,682.07 bbls. Paragon Refining Co. had other receipts of 147,432.29 bbls. Paragon Development had other receipts of 3,317.99 bbls. Pure Oil had other receipts of 26,225.06 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipelines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for November and December:

	Nov. '26	Dec. '26
Nat. Transit	389,815.83	379,912.05
S. W. Pa. P. L.	421,135.25	387,781.68
Eureka P. L.	212,160.66	216,977.84
Buckeye P. L. (Macksburg)	132,197.81	154,946.46
Buckeye P. L. (Cleveland)	971.62	728.64
Buckeye P. L. (Lima, etc.)	802,924.12	782,320.54
Indiana P. L.	1,088,579.17	994,926.94
Cumberland P. L. ..	151,671.44	149,491.00
N. Y. Transit	356,553.86	149,023.17
Northern P. L.	133,269.34	131,731.38
Tidewater P. L. ...	119,262.59	126,654.61
Pure Oil	182,412.33	180,336.40
Emery P. L.	54,695.51	52,687.59
Paragon Ref.	143,797.51	144,201.93
Indian Ref.	344,876.96	344,748.27
Paragon Dev.	20,250.70	27,034.30
Pittsburgh P. L.	5,456.95	5,770.94
Total	4,580,031.65	4,229,273.77
Daily average	152,667.72	136,428.19

Note—Indian Refining Co. had other deliveries of 35,000 bbls.

Gross Stocks

The gross stocks held by various pipelines in the oil-producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of November and December were as follows:

	Nov. '26	Dec. '26
Nat. Transit	1,031,719.61	959,787.37
S. W. Pa. P. L.	702,811.14	759,804.36
Eureka P. L.	1,301,572.40	1,302,500.01
Buckeye P. L. (Macksburg)	410,138.81	409,640.31
Buckeye P. L. (Cleveland)	97,405.41	88,953.99
Buckeye P. L. (Lima, etc.)	2,536,090.55	2,682,184.36
Indiana P. L.	611,184.63	556,975.01
Cumberland P. L. ..	594,939.50	635,489.39
Southern P. L.	358,263.87	359,852.75
N. Y. Transit	589,834.28	684,279.12
Northern P. L.	432,214.10	449,888.71
Pure Oil	468,435.02	476,016.18
Emery P. L.	9,964.42	11,905.35
Paragon Ref.	19,458.48	22,286.05
Indian Ref.	79,645.28	44,154.00
Paragon Dev.	9,949.95	6,753.55
Pittsburgh P. L.	3,990.04	4,041.67
Total	9,257,667.59	9,454,512.19
Decrease	13,138.65	*196,844.60

* Increase.

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipelines at the close of November and December, showing the gross stocks of the above fields:

	Nov. '26	Dec. '26
Pennsylvania	3,697,648.30	3,721,105.82
Lima	777,215.93	747,203.76
Kentucky	1,112,607.94	1,078,893.67
Mid-Continent	3,618,965.41	3,876,698.05
Illinois	51,230.01	30,610.89
Total	9,257,667.59	9,454,512.19

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1923	1924	1925	1926
January	75,790	62,638	56,831	55,630
February	71,092	68,023	60,606	60,394
March	76,592	68,721	60,575	61,644
April	75,614	71,058	63,062	63,019
May	77,365	63,942	59,217	60,580
June	77,592	62,240	61,270	64,131
July	71,879	64,208	62,639	63,206
August	76,910	59,942	59,686	61,815
September	72,358	62,930	62,510	64,639
October	76,256	64,976	60,995	62,704
November	70,762	56,282	59,350	61,774
December	69,271	55,814	57,974	58,755

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1923	1924	1925	1926
January	171,067	145,518	157,889	156,056
February	164,219	148,732	160,863	159,488
March	185,487	147,098	154,591	150,239
April	170,751	147,611	151,429	152,371
May	177,102	134,997	146,995	160,988
June	173,598	143,010	149,467	160,257
July	168,330	124,187	161,338	160,945
August	142,776	123,120	161,730	151,929
September ..	137,266	127,325	156,719	158,915
October	134,597	123,170	145,388	161,132
November ..	131,426	124,400	143,582	152,668
December ...	139,909	151,392	150,162	136,428

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1924	1925	1926
January	12,907,202	11,353,276	9,859,[illegible]
February	11,844,068	11,192,924	9,579,[illegible]
March	10,906,752	11,158,297	9,438,[illegible]
April	10,922,742	11,062,082	9,805,[illegible]
May	11,335,309	11,207,562	9,531,[illegible]
June	11,544,204	11,093,796	9,585,[illegible]
July	12,062,361	11,067,453	9,734,[illegible]
August	12,221,676	10,974,481	9,668,[illegible]
September ..	12,206,836	10,781,753	9,423,[illegible]
October	12,664,061	11,086,850	9,268,[illegible]
November	12,268,530	11,068,158	9,257,[illegible]
December ..	11,583,680	10,458,445	9,454,[illegible]

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and receipts counted in the stocks and averages reported above.

	Receipts	Shipments	Stocks
1925—			
December	2,661.87	3,441.67	11,592.[illegible]
1926—			
January	2,990.16	1,478.35	13,015.[illegible]
February	2,580.23	2,776.19	12,819.[illegible]
March	2,754.62	1,732.77	13,841.[illegible]
April	3,137.40	4,519.68	12,458.[illegible]
May	2,933.29	2,096.35	13,295.[illegible]
June	3,217.62	1,655.15	14,858.[illegible]
July	3,025.86	4,075.11	13,809.[illegible]
August	2,886.59	2,121.21	14,574.[illegible]
September	2,788.18	3,373.06	13,985.[illegible]
October	2,991.86	2,307.75	14,671.[illegible]
November	2,810.60	1,664.55	15,817.[illegible]
December	2,847.52	5,561.11	13,103.[illegible]

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, January 1	2,698,647.[illegible]
Runs from wells	639,232.[illegible]
Other receipts	523,767.[illegible]
Regular deliveries	511,822.[illegible]
Other deliveries	495,224.[illegible]

The amount of Illinois oil run by the Tidewater Pipe Co. in December was 29,687.15 bbls. and deliveries were 76,125.42 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1925—		
December	665,086.99	578,938.[illegible]
1926—		
January	665,243.62	516,082.[illegible]
February	632,611.99	516,310.[illegible]
March	753,300.74	524,626.[illegible]
April	610,957.04	487,604.[illegible]
May	682,416.67	498,456.[illegible]
June	693,102.34	558,054.[illegible]
July	713,490.66	490,092.[illegible]
August	701,795.92	555,766.[illegible]
September	688,798.66	516,083.[illegible]
October	681,648.96	531,467.[illegible]
November	651,263.33	498,439.[illegible]
December	668,909.58	587,947.[illegible]

The Tidewater Pipe Co., Ltd., also delivered in December 268,039.57 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS						
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
September	10,500	7,200	54,433	22,066	11,300	105,500	.....	.....	.....	.....	.....	[illegible]
October	13,742	10,258	37,000	5,936	18,355	85,290	.....	.....	.....	742	742	[illegible]
November	6,400	16,600	27,633	23,533	17,300	91,467	.....	.....	.....	.....	.....	[illegible]
December	13,645	7,129	39,645	7,419	9,774	77,613	.....	.....	.....	.....	.....	[illegible]

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
September	16,600	6,667	83,233	1,367	20,700	128,567	9,500	35,900	2,500	3,000	50,900	179,467
October	20,452	6,935	67,542	5,516	20,916	121,323	10,129	29,516	3,839	5,419	48,930	170,253
November	14,867	7,167	55,967	5,710	27,433	111,133	18,133	35,200	2,500	2,900	58,733	169,866
December	12,484	10,613	56,129	7,452	24,064	110,742	12,548	40,742	2,903	10,839	67,032	177,774

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS (REVISED)

(IN BARRELS)

1926—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
January:	Month	19,069,563	13,674,813	11,059,467	3,250,536	5,489,604	1,726,390	3,136,280	3,014,000	62,420,653
	Daily average	615,147	441,123	356,757	104,856	177,084	55,690	104,396	97,226	1,949,034
February:	Month	17,163,963	12,392,016	9,943,232	2,891,812	4,756,836	1,584,184	2,778,605	2,931,000	54,441,648
	Daily average	612,999	442,572	355,115	103,279	169,887	56,578	99,236	104,678	1,944,345
March:	Month	18,825,786	14,312,886	11,014,238	3,334,887	5,115,837	1,889,636	3,161,250	3,349,000	61,003,520
	Daily average	608,283	461,706	355,298	107,577	165,027	60,956	101,976	108,032	1,967,536
April:	Month	18,091,771	14,445,190	10,799,760	3,330,220	5,127,510	1,959,570	3,231,420	3,183,000	60,191,325
	Daily average	603,059	482,273	359,992	111,004	170,917	65,319	104,239	106,100	2,006,327
May:	Month	18,667,144	14,507,008	11,940,797	3,516,640	5,482,939	2,231,938	3,459,489	3,317,000	63,122,955
	Daily average	602,166	467,968	385,187	113,440	176,869	71,998	111,596	107,000	2,036,224
June:	Month	18,269,417	14,073,510	11,782,200	3,346,470	5,064,760	2,206,830	3,437,905	3,365,000	61,546,092
	Daily average	608,981	469,117	392,740	111,549	168,822	73,561	114,597	112,167	2,051,536
July:	Month	18,743,199	14,657,482	13,983,759	3,582,267	5,019,892	2,173,813	3,336,664	3,420,000	64,917,076
	Daily average	604,619	472,822	451,089	115,557	161,932	70,123	107,634	110,323	2,094,099
August:	Month	18,765,080	14,618,236	17,093,586	3,681,436	4,878,191	2,190,739	3,457,697	3,339,500	68,024,465
	Daily average	605,325	471,556	551,406	118,756	157,361	73,896	111,538	107,726	2,194,338
September:	Month	18,104,954	14,466,510	17,580,100	3,450,060	4,603,230	2,079,840	3,141,123	3,330,000	66,755,817
	Daily average	603,498	482,217	586,003	115,002	153,441	69,328	104,704	111,000	2,225,194
October:	Month	18,966,058	15,720,689	19,001,388	3,714,637	4,625,138	2,166,559	3,071,720	3,398,000	70,664,189
	Daily average	611,808	507,119	612,948	119,827	149,198	69,889	99,088	109,613	2,279,490
November:	Month	19,173,128	16,876,950	18,593,160	3,593,490	4,299,480	2,054,911	2,842,587	3,216,000	70,649,706
	Daily average	639,104	562,565	619,772	119,783	143,316	68,497	94,752	107,200	2,354,990
December:	Month	20,276,950	17,882,908	19,753,591	3,654,156	4,266,189	2,018,734	2,658,301	3,313,000	73,823,829
	Daily average	654,095	576,868	637,212	117,876	137,619	65,120	85,752	106,871	2,381,414
	Total 12 months	224,117,013	177,651,193	172,545,278	41,346,511	58,729,606	24,283,144	37,713,025	39,175,500	775,561,278
	Daily average	614,019	486,716	472,727	113,278	160,903	66,539	103,334	107,333	2,124,826

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Total
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64,917,07
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66,755,81
2,225,19
70,664,18
2,279,49
70,649,70
2,354,99
73,823,82
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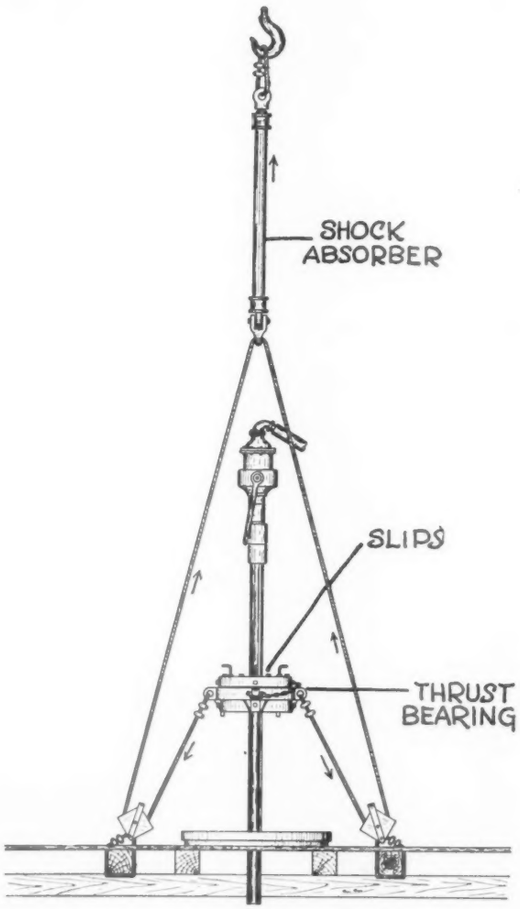

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